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3924 MEADE ST.
DENVER, COLORADO

CONTENTS

TRADE NAME	MODEL	SET AND FOLDER No.
Admiral	C2316Z, C2317Z, C2319Z, C2326Z, C2327Z, C2826Z, C2827Z, F2326Z, F2327Z, F2328Z, L2326Z, L2327Z, T2311Z, T2312Z, T2316Z, T2317Z, T2318Z, T2319Z (Ch. 21A3AZ, Z, 21C3Z, 21G3Z) Tel. Rec.	275-2
Admiral	Ch. 22A3, AZ, Z, 22B3, AZ, 22F2Z, 22G2, Z, 22N2, 22R2 Tel. Rec. Prod. Ch. Bul. 121	275-1
Allstate	6240 (Ch. 528.62400)	275-3
Arvin	857T (Ch. RE378)	275-4
Columbia Records	326	275-5
Emerson	808B (Ch. 120189-B)	275-6
Emerson	1030D, 1032D (Ch. 120220-D), 1058D, 1060D, 1062D, 1064D (Ch. 120239-D) Tel. Rec.	275-7
General Electric	21C347, 21C348, 21C349, 21C350, 21C351, 21T30, 21T31 ("J" Line) Tel. Rec.	275-8
McIntosh	MC-30	275-9
Philco	C-1332 (Code 121)	275-10
Pilot	AA-410	275-11
Pilot	FM-607	275-12
RCA Victor	45-HY-4 (Ch. RS-140B)	275-13
Sentinel	1U-901, 1U-911, 1U-914, 1U-921, 1U-924, 1U-991 Tel. Rec.	275-14
Silvertone	4212 (Ch. 757.421)	275-15
Truetone	D2582A	275-16

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 2 IN SET 260

Several new models and chassis have been added to the group covered in Photofact Folder 2 - Set 260. A complete list of models with the corresponding chassis and picture tube is listed below:

MODELS	CHASSIS	PICTURE TUBE
C2225, C2226, C2227	22A3	21EP4A
C2225Z, C2226Z, C2227Z	22A3Z or 22A3AZ	21ZP4B
CU2225, CU2226, CU2227	22B3	21ZP4A
CU2225Z, CU2226Z, CU2227Z	22B3Z or 22B3AZ	21ZP4B
F2216, F2217, F2218	22A3	21EP4A
F2216Z, F2217Z, F2218Z	22A3Z or 22A3AZ	21ZP4B
FU2216, FU2217, FU2218	22B3	21ZP4A
FU2216Z, FU2217Z, FU2218Z	22B3Z or 22B3AZ	21ZP4B
T2232Z	22F2Z	21ZP4B
T2236, T2237, T2239	22A3	21EP4A
T2236Z, T2237Z, T2239Z	22A3Z or 22A3AZ	21ZP4B
TU2232	22G2	21ZP4A
TU2232Z	22G2Z	21ZP4B
TU2236, TU2237	22B3	21ZP4A
TU2236Z, TU2237Z	22B3Z or 22B3AZ	21ZP4B
122UDX12	22G2	21ZP4A
222UDX15, 222UDX16, 222UDX17	22N2	21EP4A
322UDX16	22R2	21EP4A

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ADMIRAL CHASSIS 22A3, 22A3AZ, 22A3Z, 22B3, 22B3AZ, 22F2Z, 22G2, 22G2Z, 22N2, 22R2

CHASSIS IDENTIFICATION

Chassis 22B3 is electrically identical to chassis 22B3Z, except a 21ZP4A picture tube is used, and a UHF tuner is added (part #A3969 or #A4000).

Chassis 22F2Z (Run 8 or higher) is electrically identical to chassis 22A3AZ.

Chassis 22R2 is electrically identical to chassis 22A3, except for the addition of a built-in AM radio. A schematic (Fig. 1) and radio alignment procedure is given on reverse side.

DRIVE CORD STRINGING

When the UHF tuner (part #A3969) is used, two separate drums and drive strings are used. A drawing showing the proper arrangement is given in Fig. 2.

In models using the UHF tuner (part #A4000), a different system is used. A drawing of this drive cord is given in Fig. 3.

PRODUCTION CHANGES
BULLETIN 121

PRODUCTION CHANGES
BULLETIN 121

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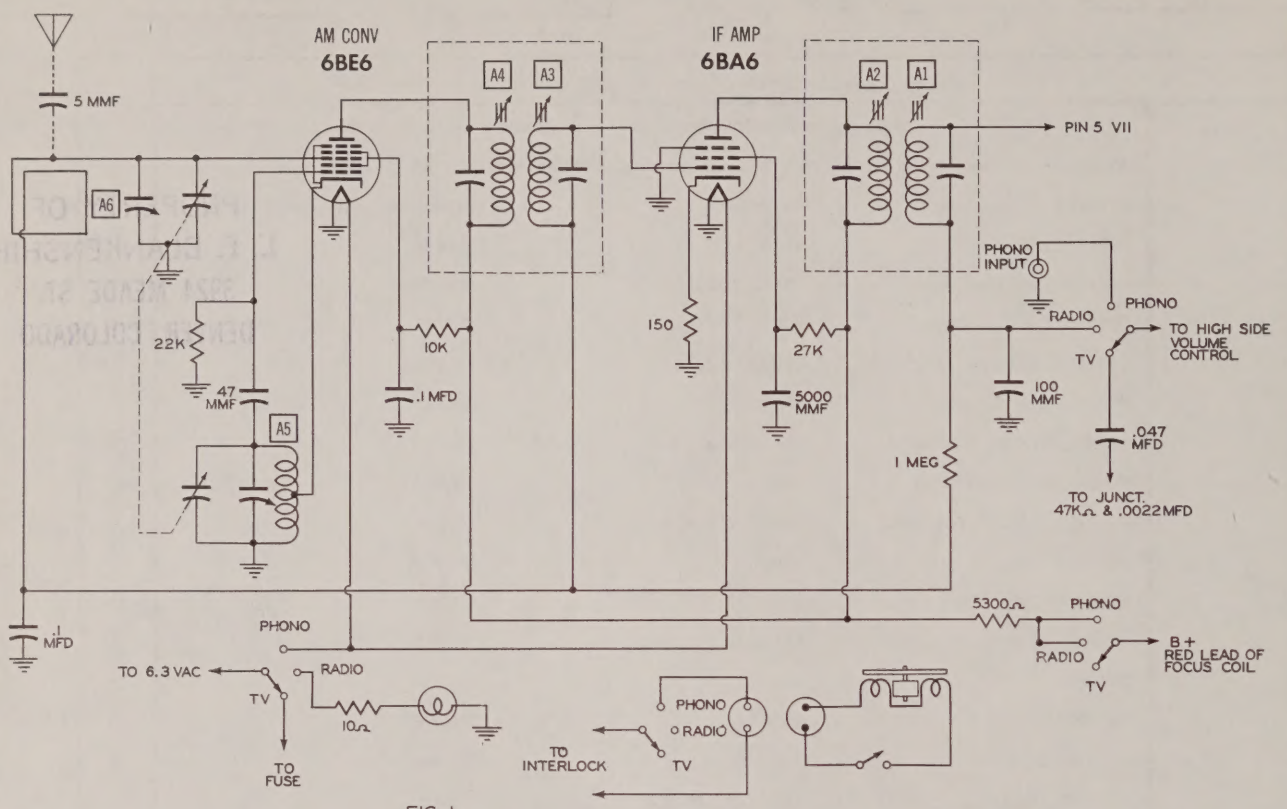

FIG. 1

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Turn function swtich to "radio" position.
Turn tone control fully clockwise.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator plates of antenna section of tuning gang. Low side to chassis.	455KC (400∿Mod)	Radio	Tuning gang fully open	Across voice coil	A1, A2, A4	Adjust for maximum deflection
2.	"	"	1620KC	"	"	"	A5	"
3.		Loop	1400KC	"	Tune to 1400KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

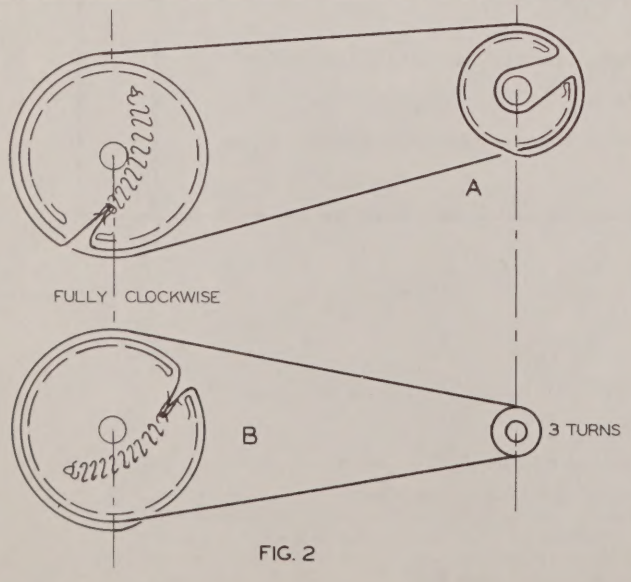

FIG. 2

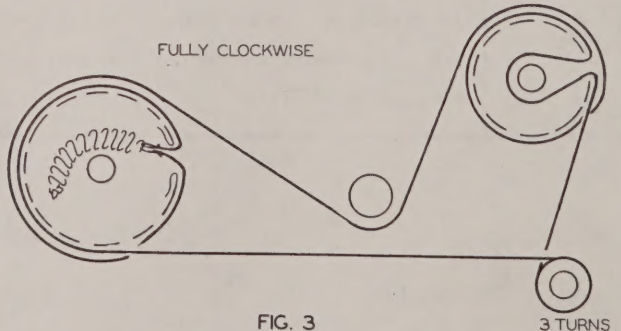

FIG. 3

	UHF TUNER CHANGED
Run 1	In initial production all UHF tuners (part #A3969) were stamped Run 1.
Ch. 22B3, 22B3Z, 22G2, 22N2, 22R2, Run 2	UHF tuner changed to part #A4000. This tuner uses a combination gear drive and drive cord stringing. See Fig. 3 for proper arrangement of drive cord.
Run 8	UHF tuner changed to part #A4160. This tuner uses an all gear drive.
Runs 1, 2, 3	In early production runs 1, 2 and 3 used a 6CL6 (V7) as the video output tube.
Ch. 22A3AZ, 22F2Z Run 9	TO REDUCE PLATE DISSIPATION OF V1 A 680Ω, ½ watt resistor (part #60B8-681) has been connected between the blue tracer lead of the VHF tuner (part #94D61-1) and the 230 volt line.
	COMPONENT CHANGE In some early sets R45 was 680KΩ and R46 was 560KΩ. These resistors were changed to 270KΩ and 1Meg, respectively, to improve DC coupling, and the brightness level.
	PILOT LIGHT CHANGED The pilot light was changed from a #44 to a #47 (part #81A1-8) in late production combination sets. When the #47 pilot light is used, the resistor in series with it is changed to 10Ω.
	PICTURE TUBE MOUNTING CHANGED The tie rods and strap assembly have been omitted in late production of models using the 21ZP4A picture tube.
Ch. 22G2, 22N2, 22R2	RESISTOR OMITTED A 150KΩ, ½ watt resistor which connects between the vertical hold control (R4) and R80 is omitted in late production models.
	SHIELD OMITTED The cover shield over the capacitor plates was omitted on some UHF tuners stamped Run 3. NOTE: If the UHF tuner does not have a shield, do not attempt to put one on.

PHOTOFACT* Folder

*TRADE MARK

RETMA MEMBER

ADMIRAL
Ch. 21A3AZ, Z, 21C3Z, 21G3Z

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Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

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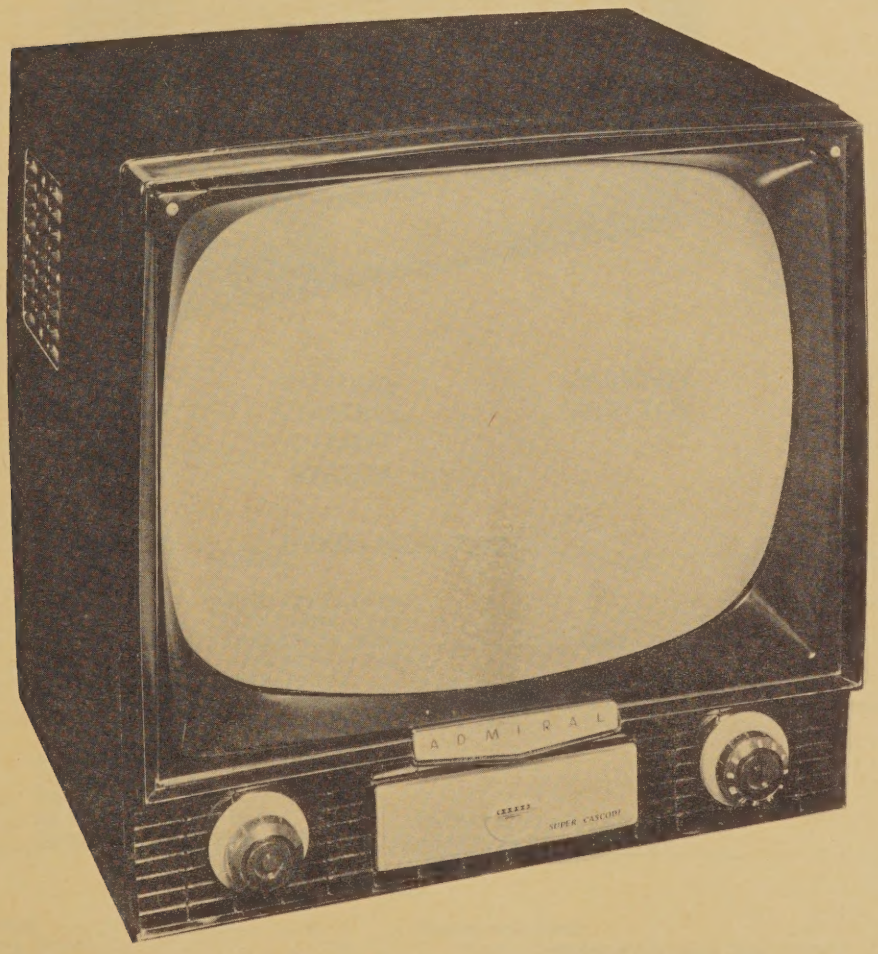

MODEL T2311Z

ADMIRAL
Ch. 21A3AZ, Z, 21C3Z, 21G3Z

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DATE 4–55 SET 275 FOLDER 2

ADMIRAL
Ch. 21A3AZ, Z, 21C3Z, 21G3Z

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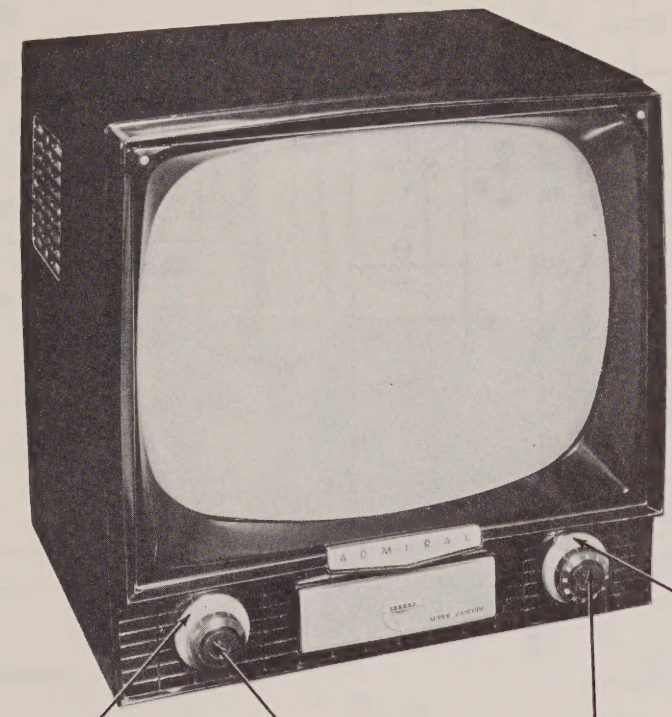

ADMIRAL MODEL T2311Z

TRADE NAME	ADMIRAL	MODELS	CHASSIS	RADIO
		C2316Z, C2317Z, C2319Z, T2311Z, T2312Z, T2316Z, T2317Z, T2318Z, T2319Z	21A3Z	
		C2326Z, C2327Z, F2326Z, F2327Z, F2328Z	21A3Z & 21A3AZ	
		L2326Z, L2327Z	21C3Z	3D1 (External)
		C2826Z, C2827Z	21G3Z	

MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois
TYPE SET	Television Receiver
TUBES	Twenty-one
POWER SUPPLY	110-120 Volts AC - 60 Cycle RATING 1.64 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13, Video IF 25.75MC, Sound IF 21.25MC (Intercarrier)

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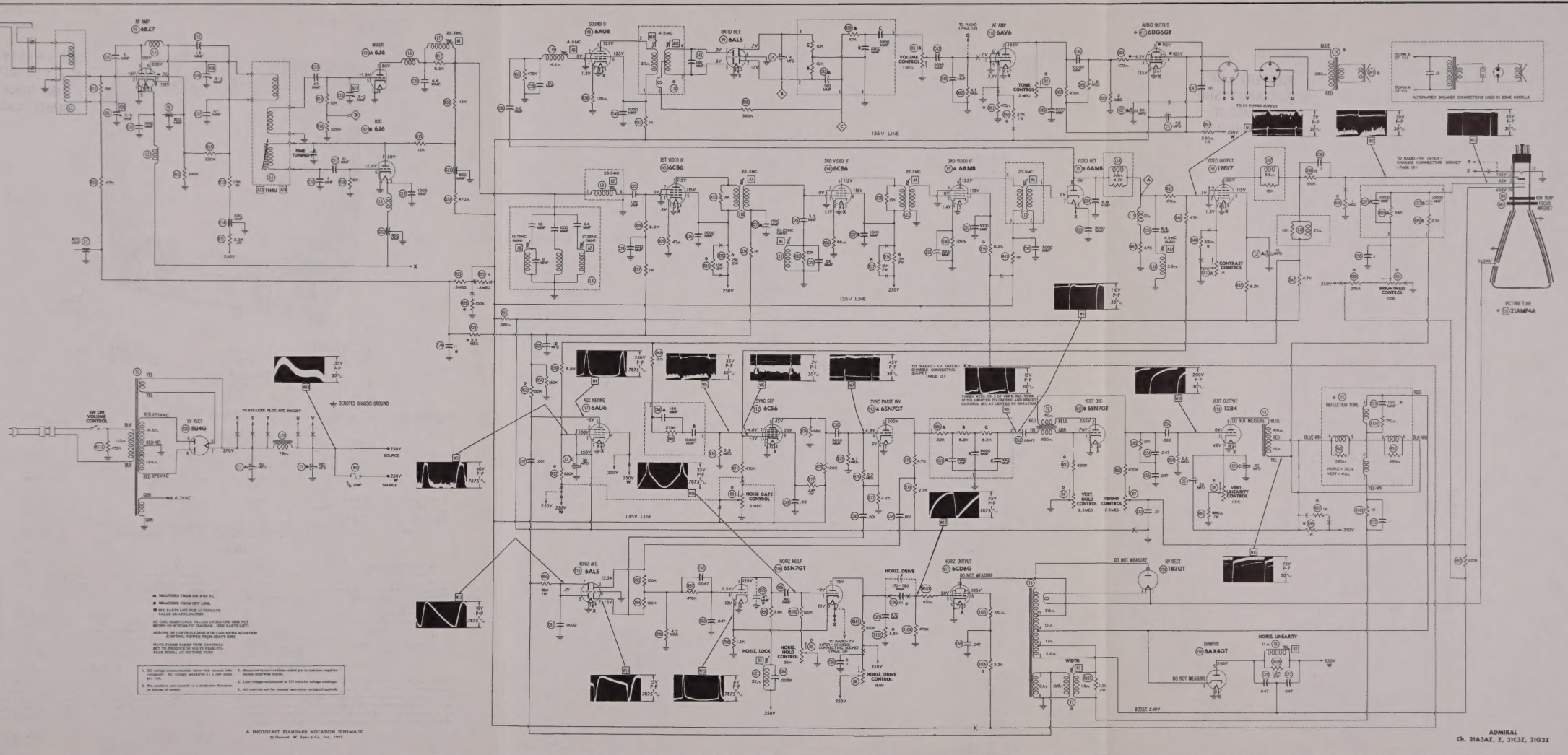
RF AMP V1 6BZ7
MIXER V2 6J6
OSC V3 6J6
SOUND IF V4 6AU6
RATIO DET V5 6AL5
AF AMP V6 6AV6
AUDIO OUTPUT V11 6DG6GT
1ST VIDEO IF V6 6CB6
2ND VIDEO IF V7 6CB6
3RD VIDEO IF V8 6AM8
VIDEO DET V9 6AM8
VIDEO OUTPUT V10 12BY7
AGC KEYING V17 6AU6
SYNC SEP V12 6CS6
SYNC PHASE INV V13 6SN7GT
VERT OSC V14 6SN7GT
VERT OUTPUT V15 12B4
HORIZ AFC V16 6AL5
HORIZ MULT V18 6SN7GT
HORIZ OUTPUT V20 6CD6G
DAMPER V19 6AX4GT
LV RECT V21 5U4G
HV RECT V22 1B3GT
PICTURE TUBE V23 21AMP4A
135V LINE
250V
SW ON VOLUME CONTROL
TO SPEAKER PLUG AND SOCKET
DENOTES CHASSIS GROUND
6.3VAC
275VAC
250V SOURCE
TO LV POWER SUPPLY
TO RADIO-TV INTERCHASSIS CONNECTING SOCKET
ALTERNATE SPEAKER CONNECTIONS USED IN SOME MODELS
ION TRAP FOCUS MAGNET
15.5KV
DEFLECTION YOKE
HORIZ = 32 μs
VERT = 4 ms
HORIZ. LINEARITY
WIDTH
BOOST 540V
DO NOT MEASURE
VOLUME CONTROL 1 MEG
TONE CONTROL 2 MEG
CONTRAST CONTROL 1K
BRIGHTNESS CONTROL 100K
VERT HOLD CONTROL 2.5MEG
HEIGHT CONTROL 2.5MEG
VERT LINEARITY CONTROL 1.5K
NOISE GATE CONTROL 5 MEG
HORIZ HOLD CONTROL 25K
HORIZ. LOCK
HORIZ. DRIVE
HORIZ. DRIVE CONTROL 40K
A MEASURED FROM PIN 5 OF V1.
B MEASURED FROM LEFT LINE.
C SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM. SEE PARTS LIST.
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured on 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ADMIRAL
Ch. 21A3AZ, Z, 21C3Z, 21G3Z

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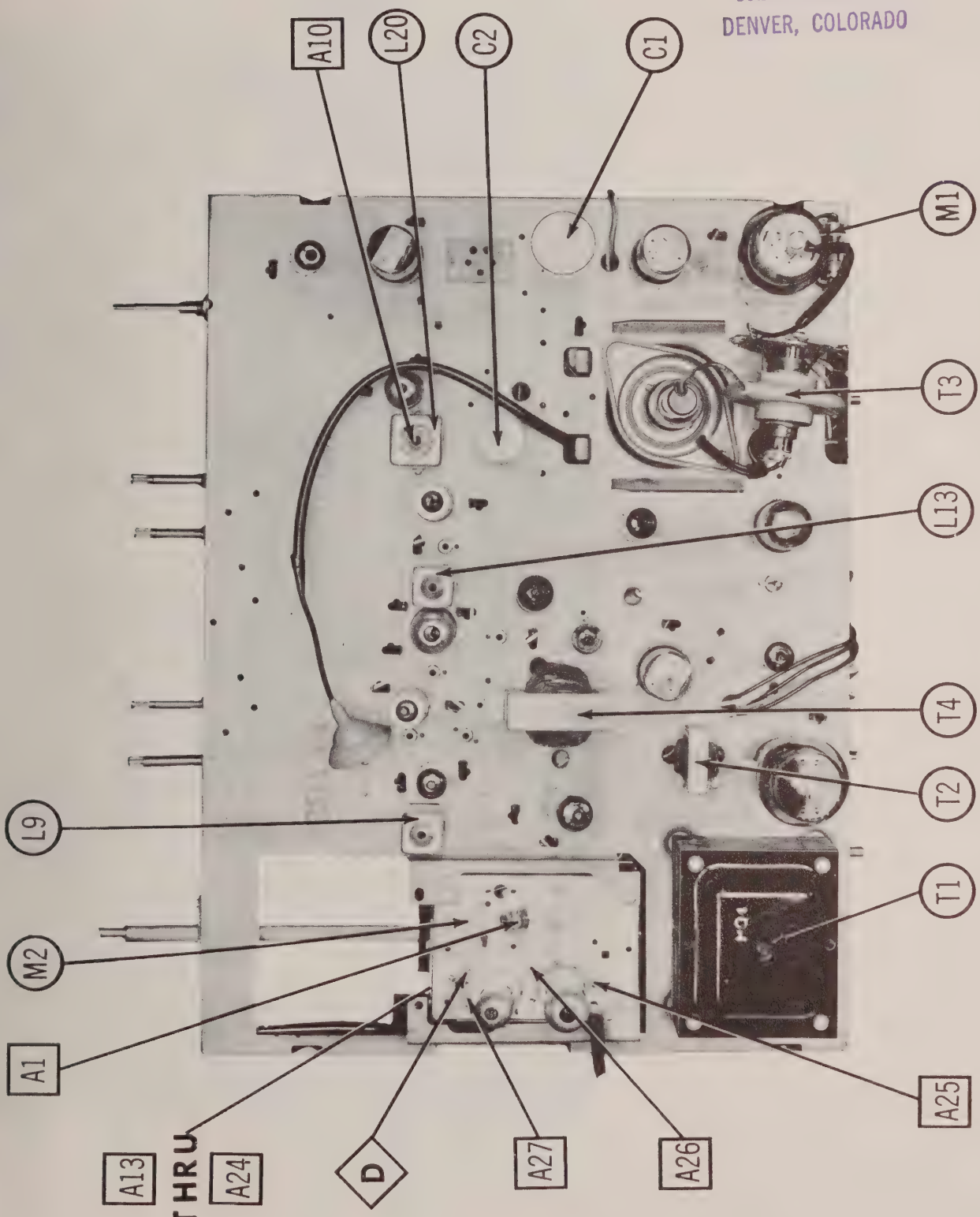

ADMIRAL
Ch. 21A3AZ, Z, 21C3Z, 21G3Z
CHASSIS TOP VIEW

CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

ADMIRAL
Ch. 21A3AZ, Z, 21C3Z, 21G3Z

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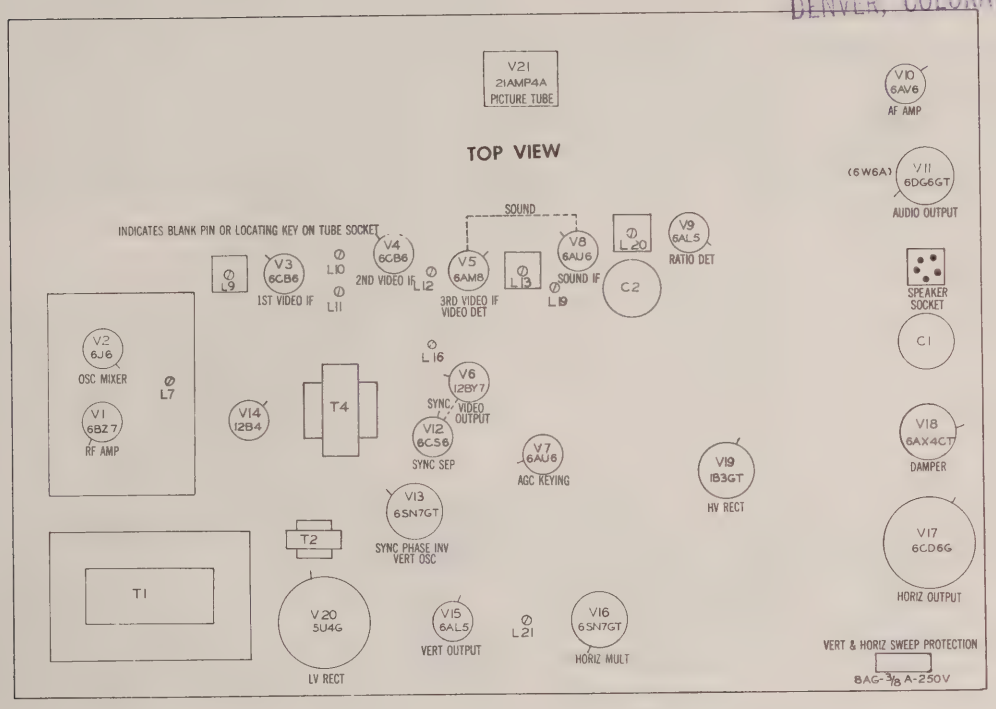
TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V20

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5, V11
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V6, V7, V21
Has pic, no sound - V8, V9, V10, V11
Overloaded picture - V7

SYNC FAILURE
No vert. sync - V13
No horiz. sync - V13, V15, V16
No vert. or horiz. sync - V12, V13

SWEEP FAILURE
No raster, has sound - V16, V17, V18, V19, V21, Fuse (M1)
No vertical deflection - V13, V14
Poor vert. linearity or foldover - V13, V14
Poor horiz. linearity or foldover - V16, V17, V18
Narrow picture - V16, V17, V18, V19, V20
Vert. off freq. - V13
Horiz. off freq. - V13, V15, V16

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from chassis if picture tube is removed. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace with a 6J6 which has pin clipped off. This will disable the local oscillator and reduce the possibility of erroneous indications. Connect the negative lead of a 3 volt battery to the ungrounded side of C24. Positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	25.3MC 25.3MC 25.3MC	Any	DC probe to point (A). thru a decoupling filter. Common to chassis. (See Fig. 1).	A1, A2, A3	Adjust for maximum deflection. Keep output from generator. Low on VTVM reading.
2.	"	"	22.3MC	"	"	A4	"
3.	"	"	23.5MC	"	"	A5	"
4.	"	"	21.25MC	"	"	A6	Adjust for minimum deflection. Increase generator output for reading on VTVM.
5.	"	"	27.25MC	"	"	A7	Adjust for minimum deflection on VTVM. Reduce bias battery to 1.5 volt for this step.
6.	"	"	19.75MC	"	"	A8	"
7.	"	"	25.3MC	"	"		Readjust A1 and A2 for maximum deflection. Increase bias battery to 3 volt.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. Attenuate output of sweep generator and marker to minimum to prevent overloading.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Direct	High side to ungrounded tube shield floating over dummy converter tube. Low side to chassis.	23MC (7MC Swp)	21.25MC 22.0MC 24.3MC 25.0MC 25.75MC	Any	Vert. Amp. to point (A) thru a decoupling filter. Common to chassis. (See Fig. 1).		Check for response similar to Fig. 2. Peaks should not differ in height over 30%. To adjust for equal peaks carefully adjust A5. If necessary, retouch A1, A2, A3 and A4 for desired response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.01MFD	High side to pin 8 of V5. Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point (B). Common to chassis.	A9, A10	Adjust for maximum deflection.
10.	.01MFD	"	"	"	DC probe to point (C). Common to chassis.	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Remove signal generator and VTVM. Tune in a TV station. Check sound for buzz. If present readjust A-11 for minimum buzz and clearest sound.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated sighal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	.01MFD	High side to pin 8 of V5. Low side to chassis.	4.5MC (450MC Swp)	4.5MC	Any non-interfering channel	Vert. Amp. to point (B). Low side to chassis.	A9, A10	Disconnect stabilizer capacitor C4. Adjust for curve of maximum amplitude and symmetry as in Fig. 3.
10.	"	"	"	"	"	Vert. Amp. to point (C). Low side to chassis.	A11	Reconnect capacitor C4. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 4. SLIGHTLY retouch A10 for maximum amplitude and straightness of cross-over lines. Remove generator and oscilloscope. Tune in a TV station and check sound for buzz. If present adjust A11 for minimum buzz and clearest sound.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
11.	.01MFD	High side to point (A). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point (B). Common to chassis.	A12	Adjust for minimum deflection.

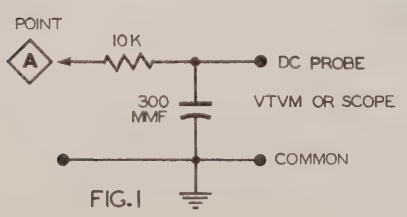


FIG. 1

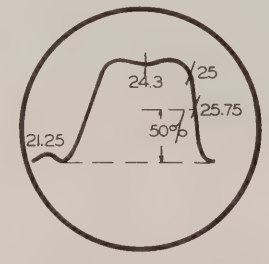


FIG. 2

FIG. 3

ALIGNMENT INSTRUCTIONS (cont)

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
The channel oscillator adjustment screws are reached thru a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible thru this hole as the channel switch is turned to each channel.
Connect bias battery as under "Video IF Alignment"
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Two 120Ω Carbon Resistors	Across antenna with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. to point Ⓐ. Low side to chassis.	A13	Adjust to place video marker at 50% on high frequency slope of IF response curve as in Fig. 5.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A14	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A15	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A16	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A17	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A18	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A19	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A20	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A21	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A22	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A23	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A24	

RF AND MIXER ALIGNMENT

Connect bias battery as under Video IF Alignment.
If unable to obtain response curve of sufficient amplitude, remove the battery and connect a short across C24.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC (10MC Swp)	193.25MC 197.75MC	10	Vert. Amp. to point Ⓓ. Low side to chassis.	A25, A26, A27	Adjust for curve of maximum amplitude with flat-top and bandwidth as in Fig. 6. Adjust A27 to obtain maximum amplitude and flat-top.
14.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response similar to Fig. 6. If markers fall below 70% on any channel make slight compromise adjustments of A25, A26 and A27 with channel switch set to that channel, then recheck all other channels to see that they have not been seriously affected.
			207MC (10MC Swp)	205.25MC 209.75MC	12			
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

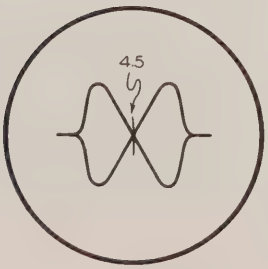


FIG. 4

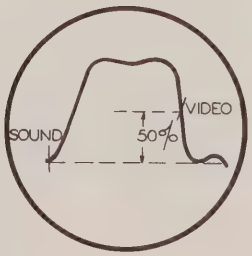


FIG. 5

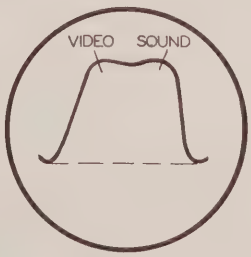
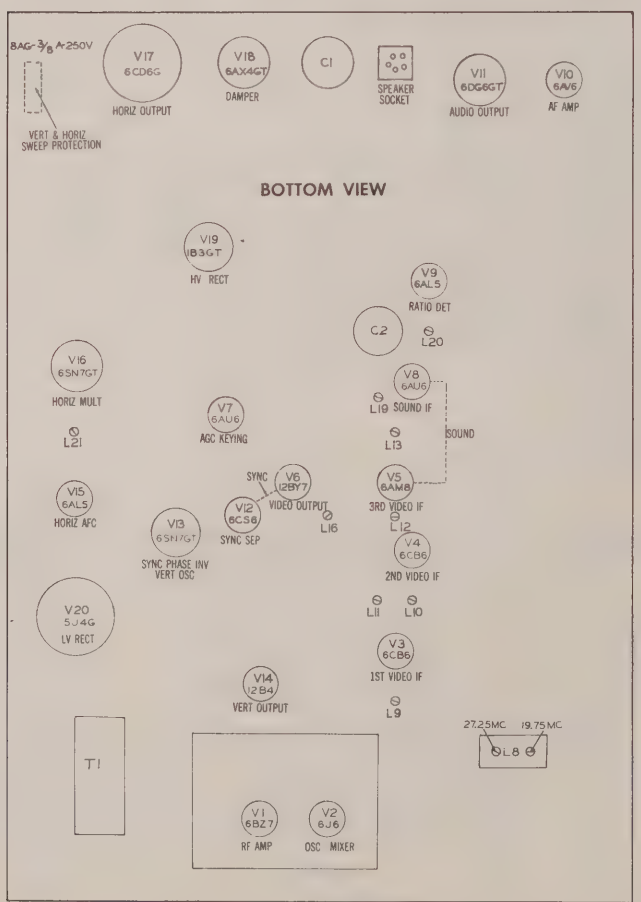


FIG. 6

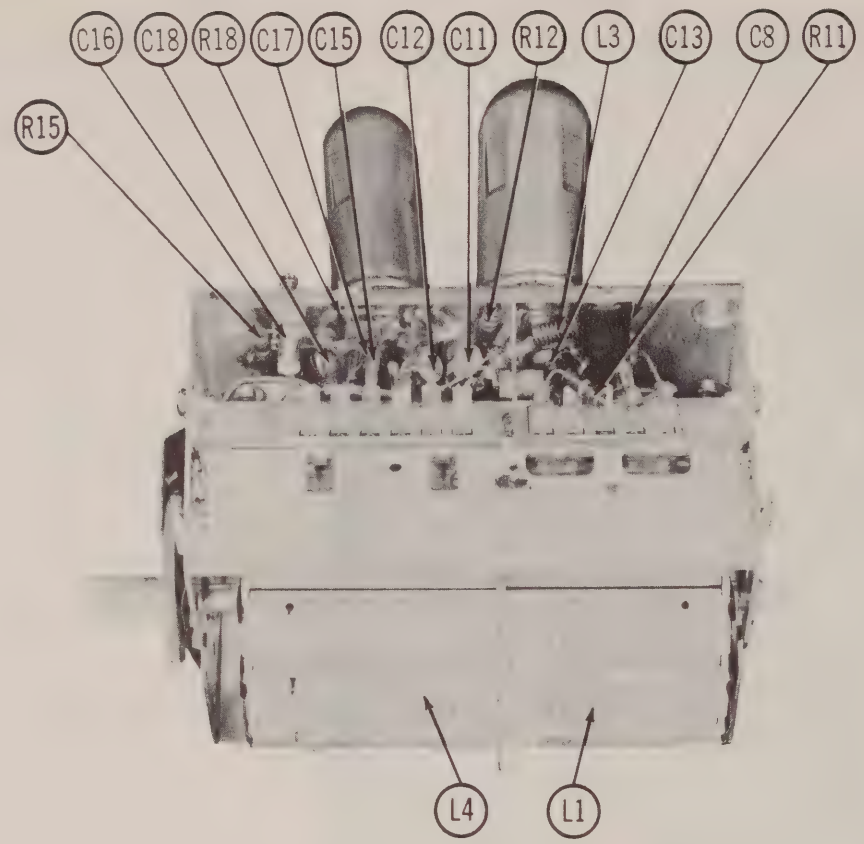
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BZ7	INF	3Meg	0Ω	. 1Ω	0Ω	†3. 7KΩ	†150KΩ	INF	0Ω
V 2	6J6	■15. 5KΩ	■15. 5KΩ	. 1Ω	0Ω	230KΩ	10KΩ	0Ω		
V 3	6CB6	160KΩ	47Ω	0Ω	. 1Ω	†7. 5KΩ	†7. 5KΩ	0Ω		
V 4	6CB6	160KΩ	68Ω	. 1Ω	0Ω	†7. 5KΩ	†7. 5KΩ	0Ω		
V 5	6AM8	120Ω	. 4Ω	■8. 2KΩ	. 1Ω	0Ω	■1KΩ	. 3Ω	4. 7KΩ	0Ω
V 6	12BY7	140Ω	4. 8KΩ	0Ω	0Ω	0Ω	. 1Ω	■5KΩ	■8. 5KΩ	0Ω
V 7	6AU6	■12KΩ	■220Ω	. 1Ω	0Ω	330KΩ	†80Ω	■220Ω		
V 8	6AU6	470KΩ	0Ω	0Ω	. 1Ω	■1KΩ	■1KΩ	120Ω		
V 9	6AL5	10KΩ	10KΩ	. 1Ω	0Ω	INF	0Ω	INF		
V 10	6AV6	4. 7Meg	470Ω	. 1Ω	0Ω	0Ω	0Ω	†470KΩ		
V 11	6DG6GT	†80Ω	0Ω	†600Ω	†300Ω	1Meg	1Meg	. 1Ω	25KΩ	
V 12	6CS6	50KΩ	0Ω	0Ω	. 1Ω	■60KΩ	■33KΩ	3. 3Meg		
V 13	6SN7GT	1. 6Meg	▲900KΩ	0Ω	1. 5Meg	■7KΩ	2. 2KΩ	0Ω	. 1Ω	
V 14	12B4	2. 2KΩ	2. 2Meg	. 1Ω	0Ω	0Ω	INF	2. 2Meg	INF	†1KΩ
V 15	6AL5	4. 8Meg	4. 8Meg	0Ω	. 1Ω	68KΩ	0Ω	68KΩ		
V 16	6SN7GT	140KΩ	†220KΩ	1. 5KΩ	5. 2Meg	†5. 7KΩ	1. 5KΩ	. 1Ω	0Ω	
V 17	6CD6G	■3. 3KΩ	. 1Ω	0Ω	INF	470KΩ	470KΩ	0Ω	■3. 4KΩ	Top Cap ▲12Ω
V 18	6AX4GT	INF	INF	INF	INF	†90Ω	INF	. 1Ω	0Ω	
V 19	1B3GT		PINS	1 - 8	HAVE	INFINITE	RESISTANCE			Top Cap ▲527Ω
V 20	5U4G	INF	140KΩ	INF	14Ω	INF	15Ω	2. 2KΩ	140KΩ	
V 21	21AMP4A	. 1Ω	†180KΩ	Pin 10 ▲220KΩ	Pin 11 ■110KΩ	Pin 12 0Ω				

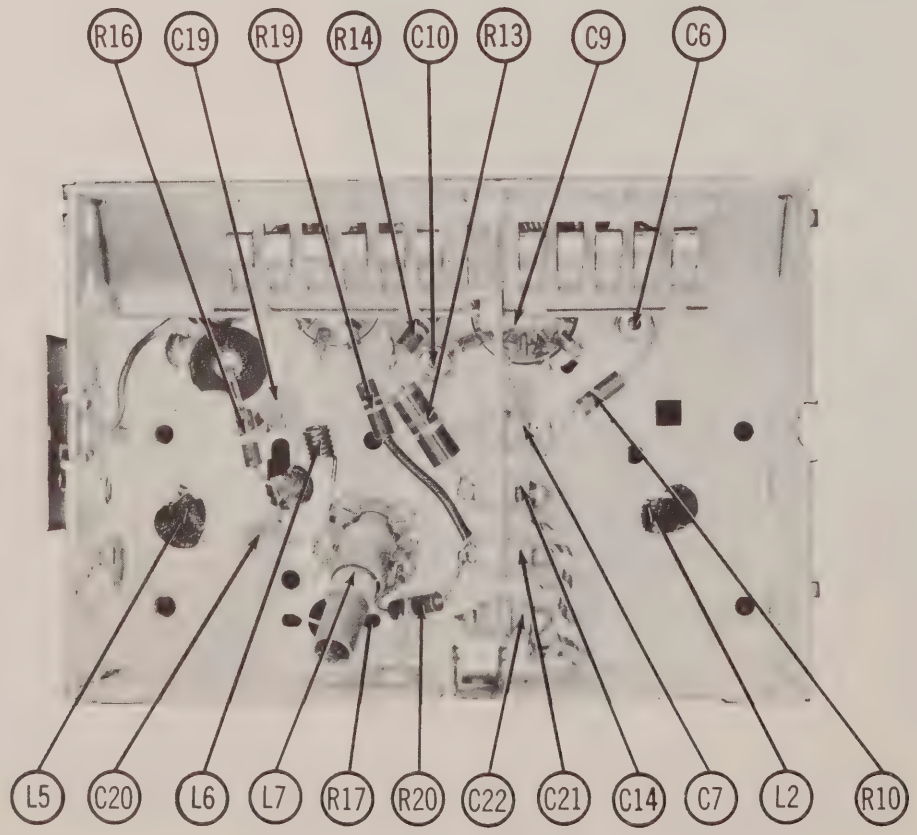
† MEASURED FROM PIN 2 OF V20.
■ MEASURED FROM 135V LINE.
▲ MEASURED FROM PIN 3 OF V18.



TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

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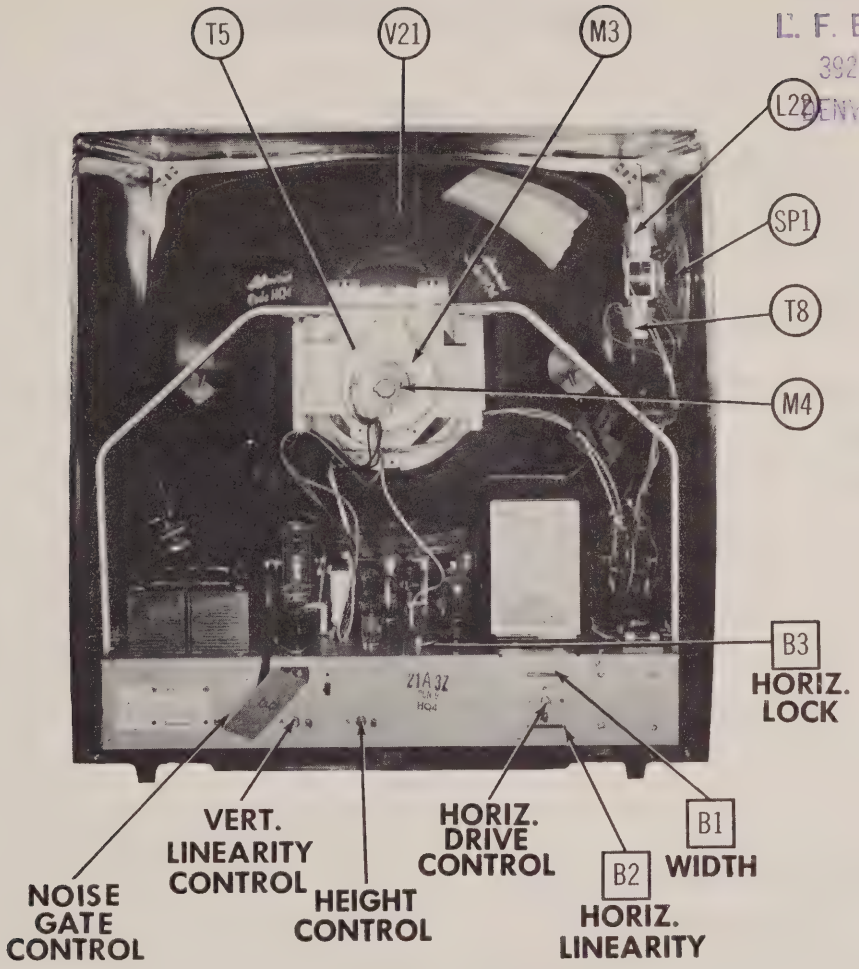


CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station. preferably a test pattern. Set contrast control for normal contrast. Adjust noise gate (R9) control properly before proceeding with the horizontal adjustment. In normal signal areas, R9 should be set at fully counter clockwise position. In fringe areas, adjust R9 for minimum snow in the picture. Adjust as follows:

1. Tune in strongest TV signal in area.
2. Turn contrast control fully clockwise.
3. Turn R9 from counter clockwise position until picture starts to pull horizontally and roll vertically.
4. Turn back to counter clockwise position until sync is stable. Switch from channel to channel and make slight readjustment, if necessary to correct sync.

HORIZONTAL OSCILLATOR ADJUSTMENT

Adjust width slug (B1) for a picture slightly wider than necessary to fill the picture mask horizontally. Adjust the horizontal drive control (R6) fully clockwise. Adjust the horizontal linearity slug (B2) for a picture symmetrical from left to right. Turn the horizontal lock slug (B3) in until the picture falls out of sync. With the horizontal sync out, turn B3 slowly out until the picture just locks in horizontal sync with R5 fully clockwise. Turn to an unused channel, if a white vertical line appears in picture, slowly adjust R6 counter clockwise until line disappears. If the horizontal drive needed adjustment, tune in a TV station and adjust B3 while rotating R5 in either direction until picture synchronizes horizontally.

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss of High Voltage".

INSUFFICIENT SWEEP

Check by substitution V17, V18 and V20. Check adjustments B1, B2 and R6. Check C68, C66, R106 and other associated components. Check T3 and T5A.

DRIVE LINES

Check by substitution V17 and V18. Check adjustments R6 and B2. Check C68, R101, R106 and other associated components. Check T3.

COMPRESSED LEFT SIDE

Check by substitution V17 and V18. Check horizontal and damper stages for component failure or change of value.

FOLDS

Follow procedure outlined under "Drive Lines".

PIE CRUST EFFECT

Check by substitution V16, V17 and V18. Check C63 for open. Check L21, C64, C65, R100 and other associated components.

XMAS TREE EFFECT

Check by substitution V16, V17 and V18. Check T3 and T5 for internal arcing. Check C62, C64, C65, R100, R99, L21 and other associated components.

VERTICAL

LOSS OF SWEEP

Check by substitution V13 and V14. Check waveform W10.

If Satisfactory	If Unsatisfactory
Check T4, T5B, R86, R85, C5, C2C and other associated components.	Check T2, R82, R7, R92, C52, C56 and other associated components.

INSUFFICIENT SWEEP

Check by substitution V13 and V14. Check height and vertical linearity controls for proper operation. Check T4, T5B, R82 and other associated components.

COMPRESSED AT BOTTOM

Check by substitution V13 and V14. Check R7, R82, R92, C56 and other associated components.

COMPRESSED AT TOP

Check by substitution V13 and V14. Check R8, R85, T4, C2C and other associated components.

FOLDS

Check by substitution V13 and V14. Check C54, C55, R83, R85, T4 and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Check by substitution V12 and V13. Check C48B, C50, R72, R73, R78, R79 and other associated components.

LOSS OF VERTICAL SYNC-HORIZONTAL SYNC SATISFACTORY

Substitute V13. Check vertical integrator network. Check C52, T2, R81, R4 and other associated components.

LOSS OF HORIZONTAL SYNC-VERTICAL SYNC SATISFACTORY

Check by substitution V15 and V16. Check C59, C60, C64, R100, R5, R93, R94, L21 and other associated components.

HORIZONTAL BENDING

Check by substitution V7, V12, V13, V15 and V16. Check horizontal AFC network.

VIDEO

LOSS OF VIDEO

Substitute V6. Check C2A, C36, R47, R45, L18, L17 and other associated components.

SOUND BARS (4.5MC BEAT)

Adjust tuner fine tuning for best sound and picture. Check adjustment A12. Check video IF alignment.

POOR CONTRAST

Substitute V6. Check contrast control. Check L14, L17, L18, R45, R47, C36 and other associated components.

NEGATIVE PICTURE

Substitute V6. Check picture tube. Check video detector network. Check L14, L15, C36 and other components associated with V6.

SMEAR

Substitute V6. Check L14, L15, L17, C36 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V1, V3, V4, V5 and V6 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V8, V9, V10 and V11. Check stages V10 and V11 using audio signal generator. Apply audio signal across R1B.

If Satisfactory	If Unsatisfactory
Check ratio detector and audio IF stages for component failure or change of value.	Check C43, C46, C47, C3, R67, R62, T8, speaker and other associated components.

BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustment A11. If still unsatisfactory, check audio IF alignment.

DISTORTED

Follow procedure outlined under "Weak or No Sound".

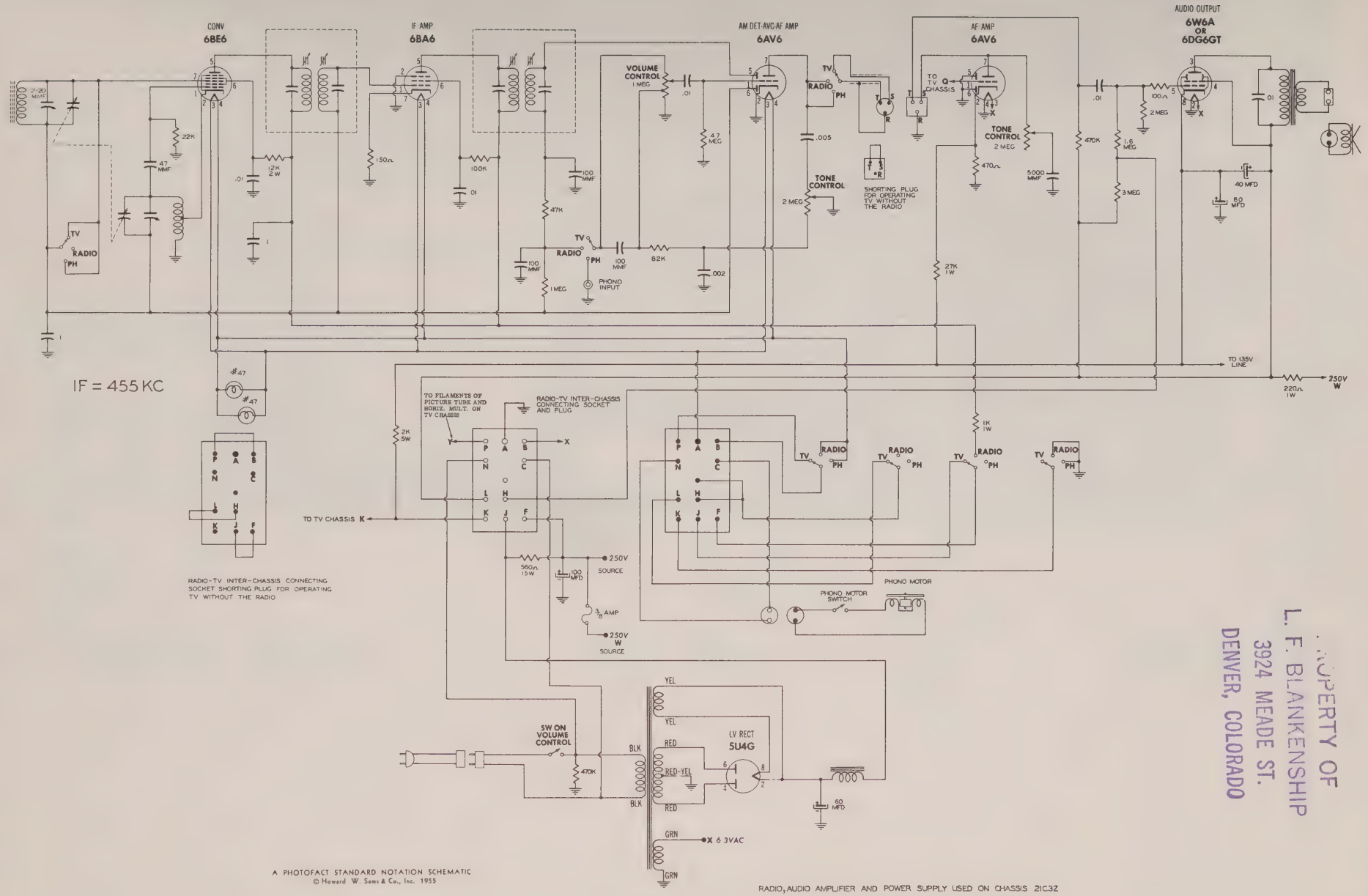
POWER

DEAD SET

If filaments fail to light, check AC interlock assembly. Check switch on volume control and T1. If filaments light, check M1 fuse. Substitute V20. Check B+ filter and decoupling network.

SMALL AND/OR DIM PICTURE

Substitute V20. Check B+ filter and decoupling network.



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RADIO SCHEMATIC

ADMIRAL
Ch. 21A3AZ, Z, 21C3Z, 21G3Z

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	RF Amp.	6BZ7	6BZ7	9AJ	
V2	Mixer-Osc.	6J6	6J6	7BF	
V3	1st Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd Video IF Amp-Video-Det.	6AM8	6AM8	9CY	
V6	Video Output	12BY7	12BY7	9BF	
V7	AGC Keying	6AU6	6AU6	7BK	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Ratio Det.	6AL5	6AL5	6BT	
V10	AF Amp.	6AV6	6AV6	7BT	
V11	Audio Output	6DG6GT	6DG6GT	7S	6W6A used as an alternate
V12	Sync Sep.	6CS6	6CS6	7CH	
V13	Sync Phase Inv. - Vert. Osc.	6SN7GT	6SN7GT	9BD	
V14	Vert. Output	12B4	12B4	9AG	
V15	Horiz. AFC	6AL5	6AL5	6BT	
V16	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V17	Horiz. Output	6CD6G	6CD6G	5BT	
V18	Damper	6AX4GT	6AX4GT	4CG	
V19	HV Rectifier	1B3GT	1B3GT	3C	
V20	LV Rectifier	5U4G	5U4G	5T	

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CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: ADMIRAL PART No.	CBS-HYTRON PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.	RETMA BASE TYPE	NOTES
V21	21AMP4A ①	21AMP4A	21ACP4A/21AMP4	21AMP4A ①	21AMP4A ①	12N	① Aluminized
		21AMP4		21AMP4		12N	② Circuit changes
				21ACP4A ①		12N	necessary.
				21ACP4		12N	
				21AQP4 ②		12D	
				21AQP4A ② ①		12D	
	27RP4	27RP4				12N	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ADMIRAL PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	NOTES
C1A	■60	350	67D15-107			FP330.9			
B	▬100	350				TC55			
C	▲20	200							
C2A	▲10	200	67D15-106						
B	■80	200							
C	20	50							
C3	40	300	67A4-19			TC78	TD-40-350	FM-4540	
C4	4	50				TC30	TD-4-50	MMT-0505	
C5	20	300	67A4-18			TC65	TD-20-350	FM-4520	
C6	3-9		98A45-96	829-10					
C7	800		94C37-90						
C8	3		94D47-54	TCZ-3.3	NP0A-3R3	ZT-5533			
C9	800		94C37-90						
C10	.5-3		98A45-23	829-3	3115-01-0R5	CT565A			
C11	1.5		94D46-84	TCZ-1.5	NP0A-1R5	ZT-5515			
C12	47		94D47-50	D6-470	831-470	UC-5447			
C13	1000		98A45-24	DD-102	801-001	DC-521			
C14	800		94C37-90						
C15	47		94D47-50	D6-470	831-470	UC-5447			
C16	.5-3		98A45-23	829-3	3115-01-0R5	CT565A			
C17	10		94D47-51	TCZ-10	NP0K-100	ZT-541			
C18	5		94D47-52	TCN-5	N750A-050	NT-555			
C19	1000		98A45-24	DD-102	801-001	DC-521			
C20	6.8		94D47-53	TCZ-6.8	NP0A-6R8	ZT-5568			
C21	800		94C37-90						
C22	800		94C37-90						
C23	120		65C6-66	D6-121	GP2K-121	UC-5312		K-1312	
C24	1000			DD-102	801-001	DC-521		K-1210	
C25	1.0	100	64A10-53			PT41			
C26	5000			DD-502	811-005	DC-525		C-1250	
C27A	1500		65A17-2	DD2-152	812-0015	DCD-5215		C-1215	
B	1500							C-1215	
C28	3.3		65C6-89	TCZ-3.3	NP0A-3R3	ZT-5533			
C29	22		65C6-47	TCZ-22	NP0K-220	ZT-5422		KR-1422	
C30	5000			DD-502	811-005	DC-525		C-1250	
C31	5000			DD-502	811-005	DC-525		C-1250	
C32	5000			DD-502	811-005	DC-525		C-1250	
C33	5000			DD-502	811-005	DC-525		C-1250	
C34	6.8		65C6-82	TCZ-6.8	NP0A-6R8	ZT-5568			
C35	6.8		65C6-71	TCZ-6.8	NP0A-6R8	ZT-5568			
C36	.1	400		DF-104		PT411	IMP4-P1	330401	
C37	.001	600		D6-102	GP2L-102	PT621	IMP6-D1	330621	
C38	6.8		65C6-71	TCZ-6.8	NP0A-6R8	ZT-5568			
C39	20			TCZ-20	NP0K-200	ZT-542		KR-1420	
C40	5000			DD-502	811-005	DC-525		C-1250	
C41	180								
C42A	390			D6-391	GP2K-391	UC-5339		K-1339	
B	2200		†63C6-15	D6-222	GP2-333-222	UC-5222		C-1222	
C	5000			DD-502	811-005	DC-525		C-1250	
C43	5000			DD-502	811-005	DC-525	IMP6-D5	C-1250	
C44	50			D6-500	GP1K-500	UC-545		K-1450	
C45	5000			DD-502	811-005	DC-525	IMP6-D5	C-1250	
C46	10000			DD-102	811-01	DC-511	IMP6-S1	330611	
C47	.01	600		D6-103	GP2-333-103	PT611	IMP6-S1	330611	
C48A	150		*63B6-8	D6-151	GP2K-151	UC-5315			
B	10000			DD-103	811-01	DC-511			
C49	.22	200				PT4022	IMP2-P22	3302022	
C50	5000			DD-502	811-005	DC-525	IMP6-D5	C-1250	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP	RATING VOLT	ADMIRAL PART No	CENTRALAB PART No	ERIE PART No	MALLORY PART No	PYRAMID PART No	SANGAMO PART No	NOTES
C51A	2000					DCC-522	IMPE-D2	C-1232	
B	5000		+63C6-2	+PC+100	+1405-01	DCC-525	IMPE-D5	C-1250	
C	5000	1				DCC-525	IMPE-D5	C-1250	
C52	.0047	600		D6-472	GP3-333-473	DP7341	IMPE-D47	3306347	
C53	.01	600		D6-103	GP3-333-103	DP7311	IMPE-D1	33061	
C54	.047	300		DF-303		DP7347	IMPE-D47	3303147	
C55	.047	600							
C56	.023	600		DF-303	817-03	DP7123	IMPE-D23	3306123	
C57A	10000		+ 63B6-12	DD-103	811-01	DC-511			
B	10000			DD-103	811-01	DC-511			
C58	.1	300		DF-104		DP7311	IMPE-P1	330361	
C59	.001	600		D6-102	GP2L-102	DP7311	IMPE-D1	330621	
C60	.001	600		D6-102	GP2L-102	DP7123	IMPE-D1	330621	
C61	.0023	600		D6-232	GP3-333-232	DP7323	IMPE-D23	3306232	
C62	.0047	600		D6-472	GP3-333-472	DP7347	IMPE-D47	3306347	
C63	.047	300		DF-303		DP7147	IMPE-D47	3303147	
C64	.0039	400	64A3-33			MC 2463		CR-1339	
C65	300	500				MC 2463		KR-1339	
C66	.1	400	64B8-57	DF-104		DP701	IMP4-P1	330401	
C67	270	500	63B21-271	TCZ-270	MPG-335-271	MC 2541		KR-1327	
C68	.01	600		D6-103	GP3-333-103	DP7311	IMP4-63	33041	Note 3
C69	.047	400		DF-303		DP7347	IMP4-D47	3304147	
C70	.047	600							
C71	.047	600							
C72	.1	400		DF-104		DP701	IMP4-P1	330401	
C73	100	3000		DD30-101	32EV-101				Note 1
C74	.1	300		DF-104		DP701	IMP3-P1	330301	Note 2
C75	.47	500	65B21-470	TCZ-47	NP0L-470	MC 2525		KR-1647	Note 3

† Items C42A, C43B, C43C, R59A, R59B and R59C are combined in one unit.
* Items C44A, C44B, R60 are combined in one unit.
♦ Items C51A, C51B, C51C, R60A, R60B, R60C are combined in one unit.
Items C57A, C57B, R89A, R89B are combined in one unit.
Note 1. Some versions use a 1N34MP in this application.
Note 3. Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	ADMIRAL PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1000Ω		73B11-21	*QJ-397	HTV-295	F1-5	UP13L	Contrast - Panel
B	1Meg					R2-54 ††	UR16A †	Volume - Rear
C	Switch					KB-1	UB-38	Attach to R1B
R2A	2.5Meg		75C13-46	Q13-238	A47-2.5Meg-Z	AB-76	U-56	Tone - Note 1
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R2A
R3A	100KΩ		75C13-43	Q11-128	A47-100K-S	AB-60	U-41	Brightness - Note 2
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R3A
R4A	2.5Meg		75C13-45	Q11-239	A47-2.5Meg-S	AB-76	U-355	Vert. Hold - Note 3
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R4A
R5A	25KΩ		75C30-19	Q11-130	A47-25K-S	AB-38	U-39	Horiz. Hold - Note 4
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R5A
R6A	180KΩ		75C30-3	Q11-129	A47-300K-S	BX-46	U-43	Horiz. Drive
B	Shaft		Not Req.	Not Req.	FK3-1/4	AK-1	Not Req.	Attach to R6A
R7A	2.5Meg		75C30-1	Q11-239	A47-2.5Meg-S	BX-53	U-355	Height
B	Shaft		Not Req.	Not Req.	FK3-1/4	AK-1	Not Req.	Attach to R7A
R8A	1500Ω		75C30-22	Q11-110	A47-1500-S	AB-6	U-8	Vert. Linearity - Note 5
B	Shaft		Not Req.	Not Req.	FK3-1/4	AK-1	Not Req.	Attach to R8A
R9A	5Meg		75C1-54	Q11-141	A47-5Meg-S	B-87	U-87	Noise Gate - Note 6
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R9A

* CONCENTRIKIT EQUIVALENT: KIT K-2, BASE ELEMENTS & SHAFTS: B17-105 & P1-126 (PANEL)
B13-127 & R2-313 (REAR)
76-1 SWITCH

† Universal replacement (Mallory exact duplicate part no. UE576)
†† Universal replacement (Centralab exact duplicate part no. 853B-733-S)
Note 1: Some versions may use alternate control part no. 75C13-41.
Note 2: Some versions may use alternate control part no. 75C13-25.
Note 3: Some versions may use alternate control part no. 75C13-26.
Note 4: Some versions may use alternate control part no. 75C13-28.
Note 5: Some versions may use alternate control part no. 75C13-42.
Note 6: Some versions may use alternate control part no. 75C30-2.

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No	IRC PART No.	NOTES
R10	47KΩ	1	60B8-473	BTS-47K	
R11	15KΩ	1	60B8-153	BTS-15K	
R12	330KΩ	1	60B8-334	BTS-330K	
R13	100KΩ	1	60B14-452	BTA-1500	
R14	220KΩ	1	60B8-224	BTS-220K	
R15	10KΩ	1	60B8-103	BTS-10K	Note 1
R16	220KΩ	1	60B8-224	BTS-220K	
R17	820KΩ	1	60B8-823	BTS-820K	
R18	470KΩ	1	60B8-474	BTS-470K	
R19	15KΩ	1	60B8-153	BTS-15K	
R20	15KΩ	1	60B8-153	BTS-15K	
R21	2200Ω	1	60B14-222	BTA-2200	
R22	470Ω	1	60B8-471	BTS-470	
R23	1.5Meg	1	60B8-158	BTS-1.5Meg	
R24	2.7Meg	1	60B8-275	BTS-2.7Meg	Note 7
R25	1.5Meg	1	60B8-155	BTS-1.5Meg	Note 7
R26	100KΩ	1	60B8-104	BTS-100K	Note 1
R27	1000Ω	1	60B8-102	BTS-1000	
R28	8200Ω 5%	1	60B8-822	BTS-8200 5%	
R29	47Ω	1	60B8-470	BTS-47	
R30	15KΩ	2	60B20-153	BTB-15K	Note 5
R31	15KΩ	2	60B20-153	BTB-15K	Note 5
R32	15KΩ 5%	2	60B7-153	BTB-15K 5%	
R33	27KΩ	2	60B8-273	BTS-27K	
R34	1000Ω	2	60B8-102	BTS-1000	
R35	68Ω	2	60B8-680	BTS-68	
R36	15KΩ	2	60B20-153	BTB-15K	Note 5
R37	15KΩ	2	60B20-153	BTB-15K	Note 5
R38	10KΩ 5%	1	60B7-103	BTS-10K 5%	

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No	IRC PART No.	NOTES
R39	8200Ω	1	60B8-822	BTS-8200	Note 6
R40	120Ω	1	60B8-121	BTS-120	
R41	1000Ω	1	60B8-102	BTS-1000	
R42	47000Ω 5%	1	60B7-472	BTS-4700 5%	
R43	100Ω	1	60B8-101	BTS-100	
R44	33KΩ	1	60B8-333	BTS-33K	
R45	8200Ω	1	60B8-823	BTS-8200	
R46	47KΩ	1	60B8-473	BTS-47K	
R47	4700Ω	1	60B20-472	BTS-4700	
R48	100KΩ	1	60B8-104	BTS-100K	Note 9
R49	1Meg	1	60B8-105	BTS-1Meg	Note 1
R50	6800Ω	1	60B8-682	BTS-6800	
R51	220Ω	1	60B8-221	BTS-220	
R52	820KΩ	1	60B8-824	BTS-820K	Note 8
R53	150KΩ	1	60B8-154	BTS-150K	Note 10
R54	150KΩ	1	60B8-154	BTS-150K	
R55	470KΩ	1	60B8-474	BTS-470K	
R56	120Ω	1	60B8-121	BTS-120	
R57	1000Ω	1	60B8-102	BTS-1000	
R58	390Ω	1	60B8-391	BTS-390	
R59A	47KΩ	2	60B8-473	BTS-47K	
B	10KΩ		163C6-15	BTS-10K	
C	10KΩ			BTS-10K	
R60	4.7Meg	2	60B8-475	BTS-4.7Meg	
R61	470Ω	1	60B8-471	BTS-470	Note 1
R62	470KΩ	1	60B8-474	BTS-470K	
R63	27KΩ	1	60B14-273	BTA-27K	Note 1
R64	100Ω	1	60B8-101	BTS-100	
R65	2.2Meg 5%	1	60B7-205	BTS-2Meg 5%	

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No	IRC PART No.	NOTES
R66	6.8Meg 5%	1	60B7-185	BTS-6.8Meg 5%	
R67	2200	1	60B14-221	BTA-220	
R68	15KΩ	1	60B8-153	BTS-15K	
R69	270KΩ	1	60B8-274	BTS-270K	
R70	3.3Meg	1	60B8-335	BTS-3.3Meg	
R71	470KΩ	1	60B8-474	BTS-470K	
R72	33KΩ	1	60B14-333	BTA-33K	
R73	120KΩ	1	60B8-124	BTS-120K	
R74	68KΩ	1	60B8-683	BTS-68K	
R75	4.7Meg	1	60B8-475	BTS-4.7Meg	
R76	2.2Meg	1	60B8-225	BTS-2.2Meg	
R77	2200Ω	1	60B8-222	BTS-2200	
R78	4700Ω	1	60B8-472	BTS-4700	
R79	2700Ω	1	60B8-272	BTS-2700	
R80A	22KΩ			BTS-22K	
B	8200Ω	1	68C6-9	BTS-8200	
C	8200Ω			BTS-8200	
R81	820KΩ		60B8-824	BTS-820K	Note 4
R82	470KΩ		60B8-474	BTS-470K	
R83	12KΩ		60B8-123	BTS-12K	
R84	2.2Meg	1	60B8-225	BTS-2.2Meg	
R85	680Ω		60B14-681	BTA-680	
R86	1000Ω		60B8-102	BTS-1000	Note 2
R87	1000Ω		60B8-102	BTS-1000	Note 2
R88	270KΩ		60B8-274	BTS-270K	Note 3

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No	IRC PART No.	NOTES
R89A	5MΩ		+ 63B6-12	BTS-5M	
B	2700Ω			BTS-2700	
R90	560Ω		60B8-561	BTS-560	
R91	560Ω		60B8-561	BTS-560	
R92	220KΩ		60B8-224	BTS-220K	
R93	100KΩ 5%	1	60B7-104	BTS-100K 5%	
R94	100KΩ 5%		60B7-104	BTS-100K 5%	
R95	68KΩ	1	60B14-683	BTA-68K	
R96	4.7Meg	1	60B8-475	BTS-4.7Meg	
R97	470KΩ	1	60B8-474	BTS-470K	
R98	150KΩ	1	60B8-154	BTS-150K	
R99	5600Ω	1	60B8-562	BTS-5600	
R100	120KΩ	1	60B8-124	BTS-120K	
R101	100KΩ	1	60B8-104	BTS-100K	
R102	5600Ω	1	60B8-562	BTS-5600	Note 11
R103	100Ω	1	60B8-101	BTS-100	
R104	470KΩ	1	60B8-474	BTS-470K	
R105	100Ω	1	60B8-101	BTS-100	
R106	3300Ω	1	60B8-332	BTS-3300	Note 12
R107	1200Ω	2	60B20-122	BTB-1200	
R108	1200Ω	2	60B20-122	BTB-1200	
R109	1000Ω	2	60B14-102	BTA-1000	
R110	750Ω	1	60B7-751	BTS-750	
R111	470KΩ	1	60B8-474	BTS-470K	

† Items R59A, R59B, R59C, C42A, C42B and C42C are combined in one unit.
* Items R6, C44A and C44B are combined in one unit.
+ Items R80A, R80B, R80C, C51A, C51B and C51C are combined in one unit.
# Items R89A, R89B, C57A and C57B are combined in one unit.
Note 1: Not used in some versions.
Note 2: In some versions, R87 is omitted. When R87 is omitted, R86 may be 1000Ω 1 watt or 470Ω 1 watt.
Note 3: This resistor may be 180KΩ, 470KΩ or 680KΩ.
Note 4. Some versions may use a 1.2Meg resistor in this application.
Note 5: In some versions, R31 and R37 are omitted and R30 and R36 change to 8200Ω 2 watt.
Note 6: Some versions may use a 10000Ω resistor in this application.
Note 7: Some versions may use a 5.6Meg resistor in this application.
Note 8: Some versions may use a 180KΩ or a 390KΩ resistor in this application.
Note 9: Some versions may use a 270KΩ resistor in this application.
Note 10: Some versions may use a 1Meg resistor in this application.
Note 11: Some versions may use a 5.2KΩ resistor in this application.
Note 12: Chassis 21C32 uses a 1.2KΩ resistor in this application.

TRANSFORMER (POWER)

ITEM No	RATING PRI.	RATING SEC. 1	RATING SEC. 2	ADMIRAL PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	RCA TYPE No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC @1.64A	544VCT @1.44A	5VAC @3A	80C36-6	P-8167 ① ②		R-8INC ③ ④ ⑤	P9739 ③ ④		
		SEC. 3	SEC. 4	SEC. 5						
		6.3VAC @1.7A								

① Drill new mounting holes.
② Parallel and phase 6.3V windings for Sec. 3.
③ Tape 6.3V ① 1.5 A winding.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	ADMIRAL PART No	Halldorson PART No	Merit PART No	RCA TYPE No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No
T2	Vert. Osc. Trans.	79A18-4	B6702	A-3003	209Y1 ①	V405	A-8125 A-8255 *	24A87 ①	A-97X
T3	Horiz. Output Trans.	79C60-2							
T4	Vert. Output Trans.	79B43-5	21802 ① ③	A-3038 ① ②		V307 ① ②	A-8144 ① ②	26S73 ②	A-108X ① ②
T5A	Yoke-Horiz. (20MΩ)	94C74-3 ④	DF607 ⑤					Y-20 ⑤	
B	Vert.(41MΩ)	94C74-4 ④							
T6	Horiz. Lin. (5.2MΩ)	94A50-2	RF800 ⑤	MWC-8 ⑤	215H1 ⑤	302R15 ⑤	WC-8 ⑤	WC-18 ⑤ WC-24 ⑤	WC-12 ⑤ ⑥
T7	Width (4.5-31MΩ) (.3-.9MΩ)	94A49-4 94A49-2 ⑦							

① Drill new mounting hole(s).
② Connect as auto transformer.
③ Includes C79, R90, R91 and R120.
④ Used only in chassis 21C32. Includes C73, R90, R91, R120 and male plug part #88B23-3.
⑤ Connect to coded #3 and #4 terminals.
⑥ Connect to coded blue and green terminals.
⑦ Alternate width coil.
⊗ See instructions packed with unit pertaining to yoke damping network.
⊕ Remove plug.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
3					5		
4					4		
2					2		
1					1		
7					7		
8					8		
Connect With Coil Arrows →	7 & 8				7 & 8		

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE PRI	IMPEDANCE SEC	ADMIRAL PART No	Stancor PART No	Merit PART No	Triad PART No	Halldorson PART No	Thordarson PART No	NOTES
T8	2.4KΩ	3.3Ω	79C33-10 79C33-9 ①	A-3849 ①	A-2928 ①	S-4X ①	Z1006 ①	22S46 ①	① Bend mounting tabs down, file out slots and mount on original mounting bracket. ② Used in chassis 21C32 and 21A3Z.

SPEAKER

ITEM No	RATINGS SIZE	RATINGS FIELD	RATINGS V	RATINGS C	RATINGS IMP	ADMIRAL PART No	VIKING PART No	QUAM PART No	NOTES
SP1	5"	PM	3.5Ω			78B95-1	526	5A1	① Used in chassis 21C32 and 21A3Z.
	8"	PM	3.5Ω			78B96-1	829	8A2D	② Used in chassis 21C32.
	10"	PM	3.5Ω			78B97-1 ①	1021I	10A3I	
	12"	PM	3.5Ω			78B96-1	1221I	12A3I	
	12"	PM	3.5Ω			78B77-1 ②	1221I	12A3I	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	ADMIRAL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1A	Ant. Coil	0QCT	0Ω	94D46-52				Channel 2
B	Ant.Coil	0QCT	0Ω	94D46-53				Channel 3
C	Ant. Coil	0QCT	0Ω	94D46-54				Channel 4
D	Ant. Coil	0QCT	0Ω	94D46-55				Channel 5
E	Ant. Coil	0QCT	0Ω	94D46-56				Channel 6
F	Ant. Coil	0QCT	0Ω	94D46-57				Channel 7
G	Ant. Coil	0QCT	0Ω	94D46-58				Channel 8
H	Ant. Coil	0QCT	0Ω	94D46-59				Channel 9
I	Ant. Coil	0QCT	0Ω	94D46-60				Channel 10
J	Ant. Coil	0QCT	0Ω	94D46-61				Channel 11
K	Ant. Coil	0QCT	0Ω	94D46-62				Channel 12
L	Ant. Coil	0QCT	0Ω	94D46-63				Channel 13
L2	Fil. Choke	0Ω		98A45-13				
L3	Neut. Coil	0Ω		94C37-89				
L4A	RF, Mixer Grid & Osc. Coils	0Ω		94D46-72				Channel 2
B	RF, Mixer Grid & Osc. Coils	0Ω		94D46-73				Channel 3
C	RF, Mixer Grid & Osc. Coils	0Ω		94D46-74				Channel 4
D	RF, Mixer Grid & Osc. Coils	0Ω		94D46-75				Channel 5
E	RF, Mixer Grid & Osc. Coils	0Ω		94D46-76				Channel 6
F	RF, Mixer Grid & Osc. Coils	0Ω		94D46-77				Channel 7
G	RF, Mixer Grid & Osc. Coils	0Ω		94D46-78				Channel 8
H	RF, Mixer Grid & Osc. Coils	0Ω		94D46-79				Channel 9
I	RF, Mixer Grid & Osc. Coils	0Ω		94D46-80				Channel 10
J	RF, Mixer Grid & Osc. Coils	0Ω		94D46-81				Channel 11
K	RF, Mixer Grid & Osc. Coils	0Ω		94D46-82				Channel 12
L	RF, Mixer Grid & Osc. Coils	0Ω		94D46-83				Channel 13
L5	Fil. Choke	0Ω		98A45-14				
L6	RF Choke	0Ω		94D46-85				
L7	Conv. Plate	.8Ω		98A45-77				
L8	18.75MC & 27.23MC trap assembly							Includes coil & caps.
L9	1st Video IF	.1Ω		72B102-1		17-1001*	TV-100*	6186*
L10	2nd Video IF	.4Ω	.4Ω	72C26-29		17-1063		6350
L11	21.25MC trap	.1Ω		72C26-20		18-1020#	TV-113#	6178# Includes resistors & caps.
L12	3rd Video IF	.4Ω	.4Ω	72D111-1		17-1066		6349 Includes resistors
L13	4th Video IF	.8Ω	.3Ω	72B143-2		17-1003*	TV-101*	6187*
L14	Series Peaking Coil	5.3Ω		73A5-15		19-3180▲	TV-194▲	6180▲ 180 Microhenries; Wound on 4.7KΩ resistor
L15	Shunt Peaking Coil	17Ω		73A5-7		19-3500	TV-168	6174 500 Microhenries
L16	4.5MC Trap	5.3Ω		72B99-8		20-1004■	TV-151	1470 Includes resistor & caps.
L17	Series Peaking Coil	6.5Ω		73A5-14		19-3250+	TV-185+	6181+ 250 Microhenries; Wound on 18KΩ resistor
L18	Shunt Peaking Coil	37Ω		73A11-1				790 Microhenries; Wound on 15KΩ resistor
L19	Sound IF	4.6Ω		72B99-7		20-1005▲	TV-152	1470 Includes resistor & caps.
L20	Ratio Det.	3.7Ω	.5QCT	72B68-2		17-1033†	TV-110†	1468† Tertiary winding = .25Ω
L21	Horiz. Osc.	53Ω		94C17-3		19-1576	TV-163	6310 Includes Cap.

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	ADMIRAL PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L22	.230A	79Ω	1.06 Hy.	74B18-7	C-2327	C-2996 ①	C-21X ①	C5040	26C44 ①

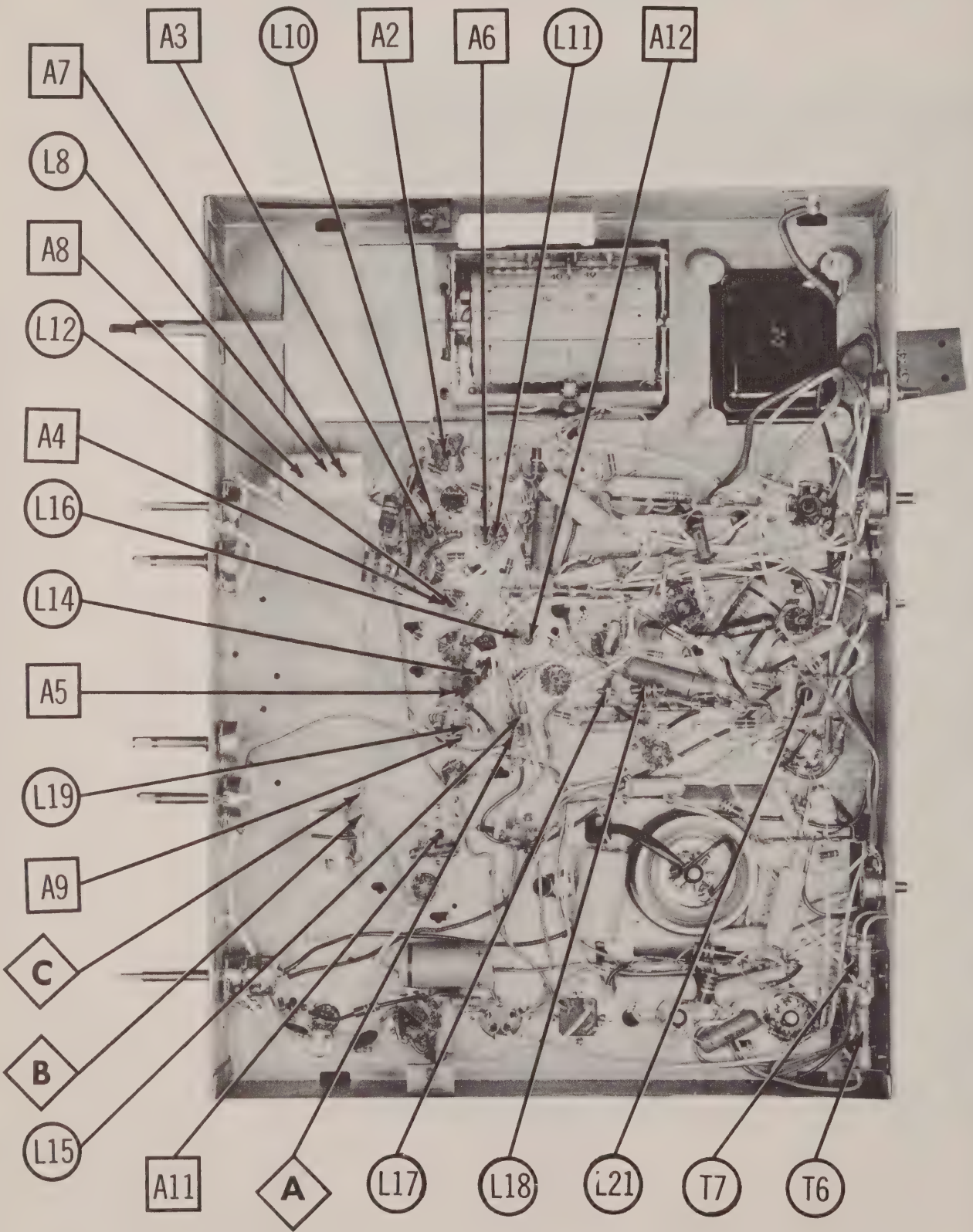
① Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ADMIRAL PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	8AG	3/8A 250V	84A4-3		362.375 (8AG-3/8A)	387001	AGX 3/8	4405

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M2	Tuner	94D61-2	VHF
M3	Focus Magnet	94C53-1	Includes centering device
M4	Ion Trap	94A15-3	
	Trimmer Cap.	66A30-3	Horiz. Drive (170-780MMF) Not used in some versions
	Cabinet	35E305-2	Model C2316Z
	Cabinet	35E305-3	Model C2317Z
	Cabinet	35E292-2	Model C2326Z
	Cabinet	35E292-3	Model C2327Z
	Cabinet	35E308-2	Model C2826Z
	Cabinet	35E308-3	Model C2827Z
	Cabinet	35E295-2	Model F2326Z
	Cabinet	35E296-3	Model F2327Z
	Cabinet	35E297-4	Model F2328Z
	Cabinet	35E303-2	Model L2326Z
	Cabinet	35E304-3	Model L2327Z
	Cabinet	34E81-1	Model T2311Z
	Cabinet	34E81-2	Model T2312Z
	Cabinet	35E290-2	Model T2316Z
	Cabinet	35E290-3	Model T2317Z
	Cabinet	35E291-4	Model T2318Z
	Knob	33D136-10	Channel Selector - all models except T2311Z
	Knob	33D136-2	Channel Selector - Model T2311Z
	Knob	33D107-58	Fine tuning - All models except T2311Z
	Knob	33D107-55	Fine tuning - Model T2311Z
	Knob	33D107-56	Contrast - All models except T2311Z
	Knob	33D107-53	Contrast - Model T2311Z
	Knob	33D136-11	On-off-volume - All models except T2311Z
	Knob	33D136-3	On-off-volume - Model T2311Z
	Knob	33C111-1	Tone - Models L2326Z, L2327Z
	Knob	33C111-2	Tuning - Models L2326Z, L2327Z
	Knob	33C111-14	TV-Radio-Phono - Models L2326Z, L2327Z
	Knob	33C111-13	Volume - Models L2326Z, L2327Z
	Mask	33D196-1	Models C2316Z, C2317Z
	Mask	23E185-2	Models C2326Z, C2327Z, F2326Z, F2327Z, F2328Z, F2326Z, L2727Z, T2316Z, T2317Z, T2318Z
	Mask	23E202-1	Models C2826Z, C2327Z
	Safety Glass	21B62-10	Models C2316Z, C2317Z
	Safety Glass	21C71-19	Models C2326Z, C2327Z, F2326Z, F2327Z, F2328Z, L2326Z, L2327Z, T2316Z, T2317Z, T2318Z
	Safety Glass	21B49-26	Models C2826Z, C2827Z
	Safety Glass	21B78-6	Models T2311Z, T2312Z



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

TROUBLE SHOOTING AIDS (cont)

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V16, V17, V18 and V19. Check waveform W17.

If Satisfactory	If Unsatisfactory
Check T3, T5A, T6, T7, C70, C71, C69, R108, R106 and other associated components.	Check L21, C64, C65, C68, R99, R101, R98 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V17, V18 and V20. Check C68, R106, R101 and other associated components. Check T4.

BLOOMING

Check by substitution V17, V18, V19 and V20. Check C68, C72, R106 and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss of Video".

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak or No Sound".

RASTER, NO SOUND, NO PICTURE

Check by substitution V1, V2, V3, V4, V5, V6 and V11. Check video IF components for failure or change of value.

NO RASTER, NO SOUND

Follow procedure outlined under "Dead Set".

KEYSTONE EFFECT

Check T5 and its associated components.

INTERMITTENT STREAKS

Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.

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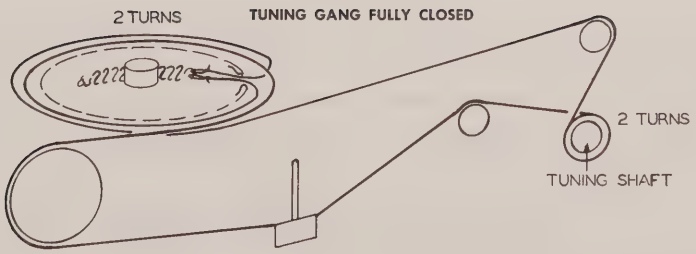


RADIO DRIVE CORD STRINGING

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF Tuner Oscillator circuit may be accomplished by removal of the Channel Selector and Fine Tuning knobs. The adjustments are accessible, one at a time, through the small hole in the cabinet to the right of the Channel Selector shaft.

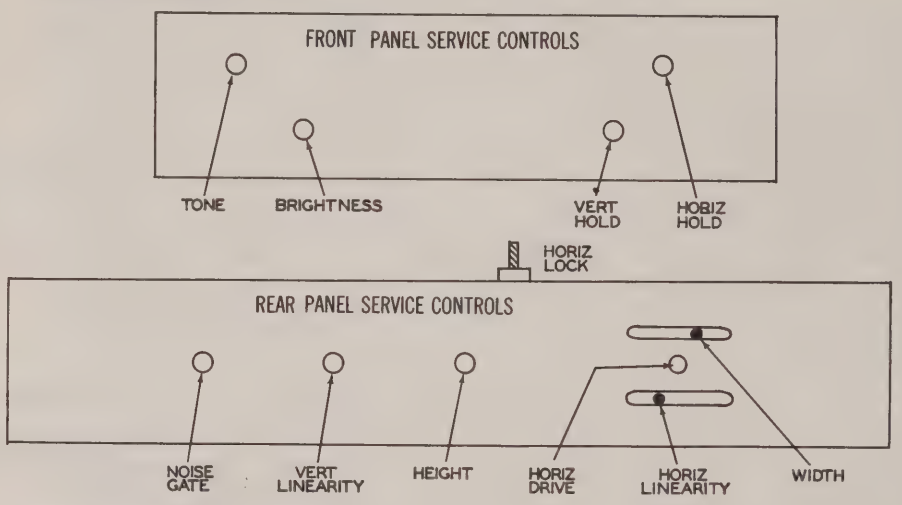
PICTURE TUBE SAFETY GLASS CLEANING

To clean safety glass, remove 2 screws from 2 clamps located in top corners of cabinet. Remove clamps and safety glass. Use extreme caution when removing safety glass.

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instruction.)

SERVICE ADJUSTMENT LOCATION



SPECIAL ADJUSTMENTS - NOISE GATE

In normal signal areas the noise gate control (R9) will usually be fully counter-clockwise position. In weak signal and high noise level areas, adjust for minimum snow in picture. This position will usually be fully clockwise.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the Horiz. Oscillator, it is necessary to remove the rear cover and supply power to set. Adjustment is located on top of chassis. Set the Horiz. Hold Control at the center of its range and adjust the Horiz. Lock slug L21 until picture synchronizes horizontally. (For location see tube placement chart.)

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate Sound IF Detector Buzz, adjust the Ratio Detector Secondary L20 located on bottom of chassis. (See tube placement chart.)

FUSES

One fuse is used for Horiz. Sweep circuit protection. (For location see tube placement chart.)

CENTERING

Centering is accomplished mechanically by means of a centering lever on the P. M. Focusing assembly. Adjust the centering lever from side to side, and up and down until the picture is properly centered.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push-on type control knobs from front panel of cabinet.
2. Remove 6 metal screws from rear cover.
3. Remove 2 metal screws from antenna bracket. Remove rear cover.
4. Remove 4 chassis bolts. Remove chassis.
5. Remove 4 speaker nuts. Remove speaker.

NOTE: If it is necessary to remove the chassis for servicing, it is also necessary to remove the speaker. The filter choke of this receiver is mounted on the speaker and must be connected to receiver for proper operation.

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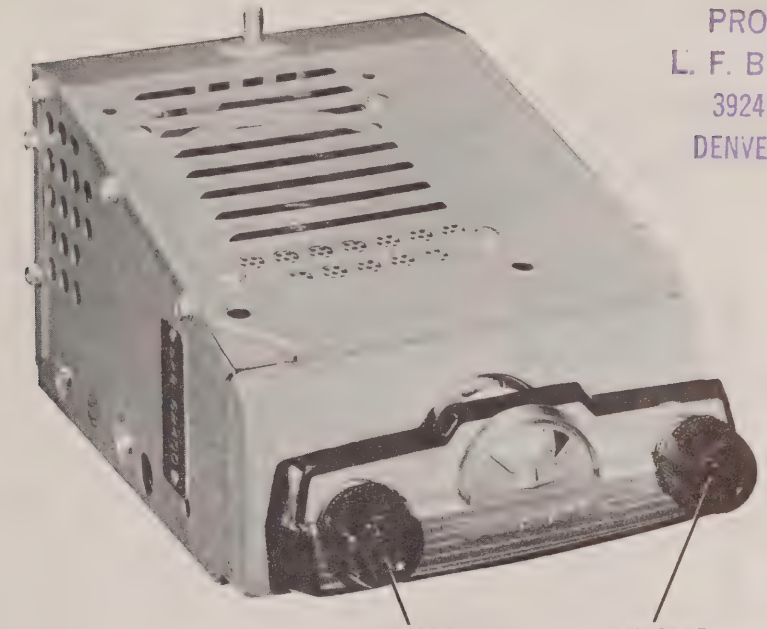
ALLSTATE
MODEL 6240 (Ch. 528.62400)



ALLSTATE
MODEL 6240 (Ch. 528.62400)

TRADE NAME	Allstate Model 6240 (Ch. 528.62400)
SUPPLIER	Sears Roebuck & Co., 925 S. Homan , Chicago, Ill.
TYPE SET	Battery Operated AM Superheterodyne Automobile Receiver For Universal Installation
TUBES (Five)	Types 6BE6 Conv., 6BA6 IF Amp., 6AV6 Det.-AVC-AF Amp., 6AQ5 Output, 6X4 Rectifier
POWER SUPPLY	6 Volt Storage Battery — RATING 4 Amp. @6.3 Volts DC
TUNING RANGE—BROADCAST	535KC - 1690KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 6BE6 (V1). Low side to chassis.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	Fig. 1	Thru dummy to antenna receptacle	1610KC	"	"	A5	"
3.	"	"	535KC	Tuning gang fully closed	"	A6	"
7.	"	"	1400KC	Tune to 1400KC signal	"	A7	"
5.	"	"	600KC	Tune to 600KC signal	"	A8	"

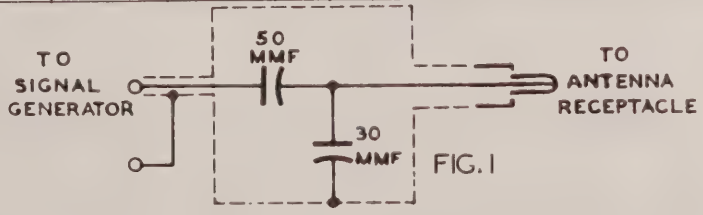


FIG. 1

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PARTS LIST AND DESCRIPTIONS

ALLSTATE
MODEL 6240 (Ch. 528.62400)

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: ALLSTATE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Converter	6BE6	6BE6	7CH	
V2	IF Amplifier	6BA6	6BA6	7BK	
V3	Det.-AVC-AF Amp	6AV6	6AV6	7BT	
V4	Output	6AQ5	6AQ5	7BZ	
V5	Rectifier	6X4	6X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ALLSTATE PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	■10	250	A18-303			FP330.5	TM-3045	T-450	
B	▲10	250							
C	10	25							
C2	10000		A15-211	D6-103	811-01	DC-511			
C3	.05	200	A16-197	DF-503		PT415	IMP2-S5	330215	
C4	50		A15-204	TCN-50	N750K-500	NT-5447			
C5	.05	200	A16-197	DF-503		PT415	IMP7-S5	330215	
C6A	220		♦ A17-111	♦PC-151	♦1408-02				
B	5000								
C	5000								
D	250								
E									
C7	5000		A16-177	D6-502	811-005	DC-525			
C8	.0068	1600	A16-265	DD16-682		PT16268	CT16-D68		Note 1
C9	10000		A15-211	D6-103	811-01	DC-511			
C10	.5		A16-215			RF480			
C11	5000		A16-177	D6-502	811-005	DC-525			
C12	.5		A16-215			RF480			

♦ Items C6A, C6B, C6C, C6D, C6E, R6A, R6B, R6C are combined in one unit.
When replacing items separately C6D and C6E should total 250MMF.
Note1. Some versions may use a .0075MFD Ⓐ 1600V or two .0047MFD Ⓐ 1600V (in parallel) in early productions.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ALLSTATE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	500KΩ	½	A24-220					Volume & switch

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: ALLSTATE PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R2	22KΩ	½	A60-2230M	BTS-22K	
R3	100Ω	½		BTS-100	Note 1
R4	120Ω	½	A60-1210M	BTS-120	
R5	2.2Meg	½	A60-2250M	BTS-2.2Meg	
R6A	6.8Meg	½		BTS-6.8Meg	
B	470KΩ	½	♦A-17-111	BTS-470K	
C	470KΩ	½		BTS-470K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: ALLSTATE PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R7	180Ω	1	A60-1810K	BTA-180	
R8	15KΩ	1	A60-1531M	BTA-15K	
R9	3300Ω	1	A60-3321M	BTA-3300	
R10	150Ω	½	A60-1510K	BTS-150	Note 2
R11	100Ω	½		BTS-100	Note 2
R12	100Ω	½		BTS-100	Note 2

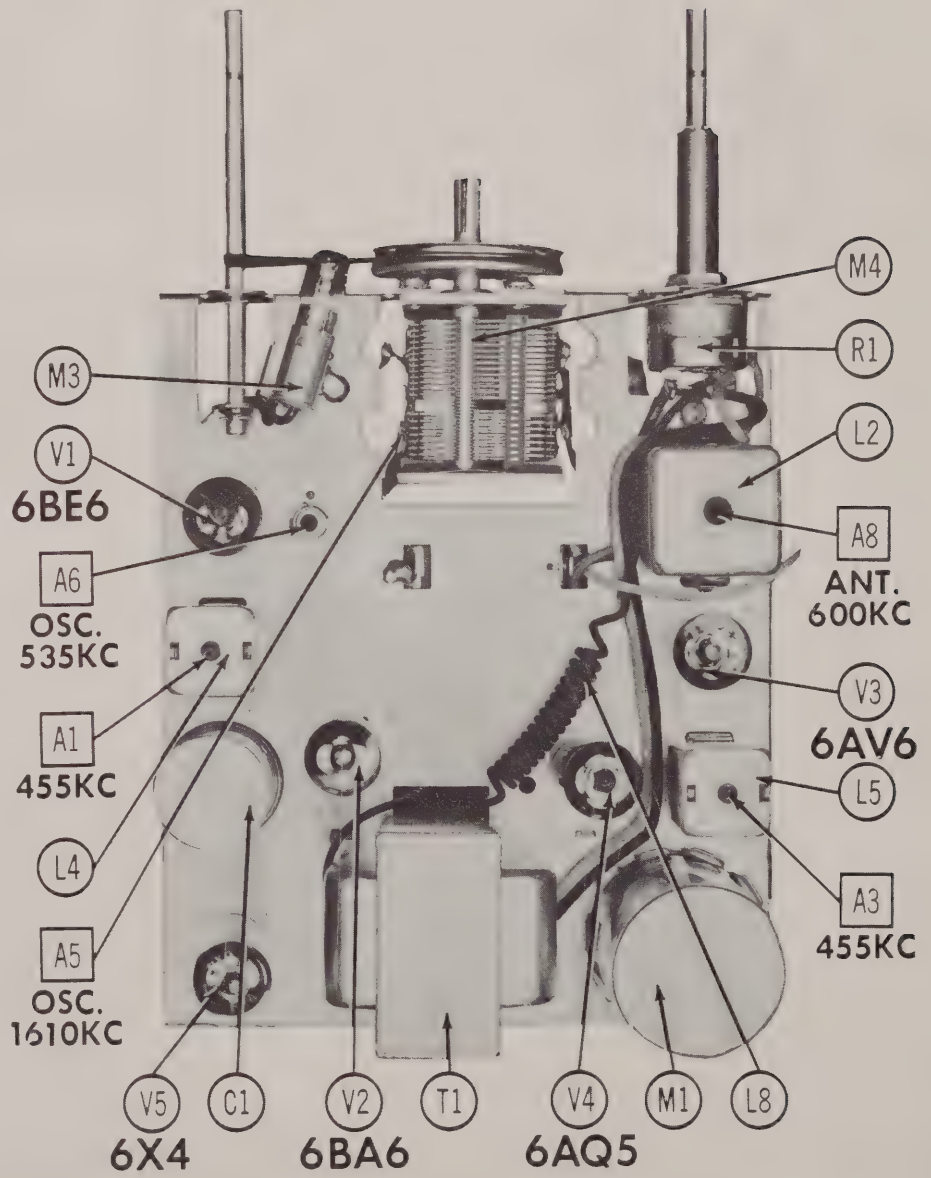
♦ Items R6A, R6B, R6C, C6A, C6B, C6C, C6D and C6E are combined in one unit.
Note 1. Not used in some versions.
Note 2. In some versions R10 is replaced by R11 and R12.

TRANSFORMER (VIBRATOR)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: ALLSTATE PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T1	6.3VCT Ⓐ2.4A	380VCT .040A			B80-314				V-3800①	

① Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA: ALLSTATE PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T2	5.2KΩ	3.9Ω	B80-315		A-3026				

SPEAKER

ITEM No.	RATINGS SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: ALLSTATE PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3.9Ω	79-438	ST-113 Mod. P4-X	4A07	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: ALLSTATE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Ant. Loading Coil	1Ω		B10-668	19-1005		4612	
L2	Ant. Coil	4.2Ω		A10-681				Tapped @ 1.5Ω
L3	Osc. Coil	8.5Ω		A10-667	14-1033		70-OSC	Tapped @ .8Ω
L4	Input IF	20Ω	20Ω	A10-508	16-6758	BC-352	12-C1	
L5	Output IF	18Ω	18Ω	A10-509	16-6758	BC-353	12-C2	
L6	Vib. Hash Choke	0Ω	0Ω	A33-239			5221	
L7	Fil. Choke	0Ω		A33-229				
L8	Fil. Choke	0Ω		A33-241				Not used in all models

* Use secondary winding only and leads sufficient mounting support.

VIBRATOR

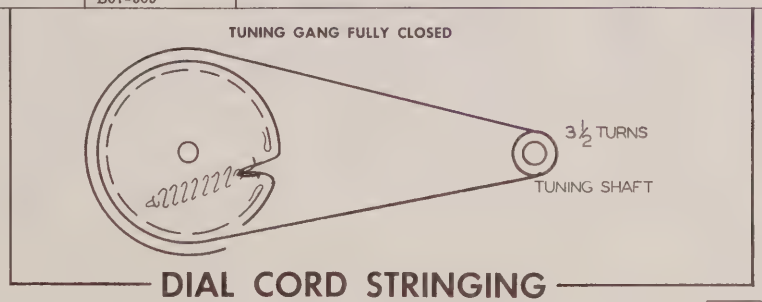
ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA: ALLSTATE PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	NOTES
M1	Interrupter	6.3V	115∿	A34-105	5301	859	5301	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: ALLSTATE PART No. FUSE	ALLSTATE PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M2	3AG	15A 32V	A43-10	S84-233	311015 (3AG-15A)	155020	AGC 15	HRJ

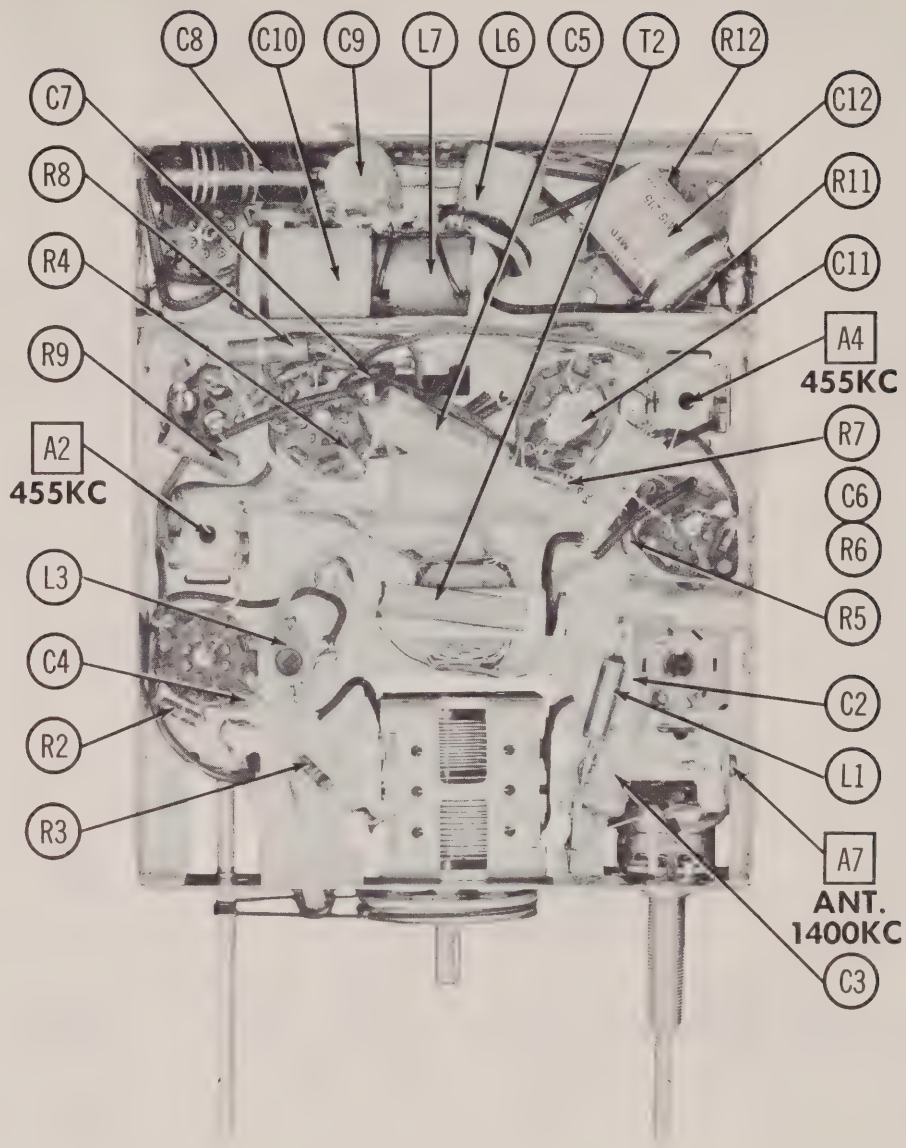
MISCELLANEOUS

ITEM No.	PART NAME	ALLSTATE PART No.	NOTES
M3	Dial Light	A89-7	#47, Bayonet
M4	Tuning Cap.	B19-239	2 Gang (9-365MMF, 15-105MMF)
A7	Trimmer Cap.	A20-145	Ant. Adj.
	Knob	A52-470	On-off-Volume & tuning
	Dial	B67-585	

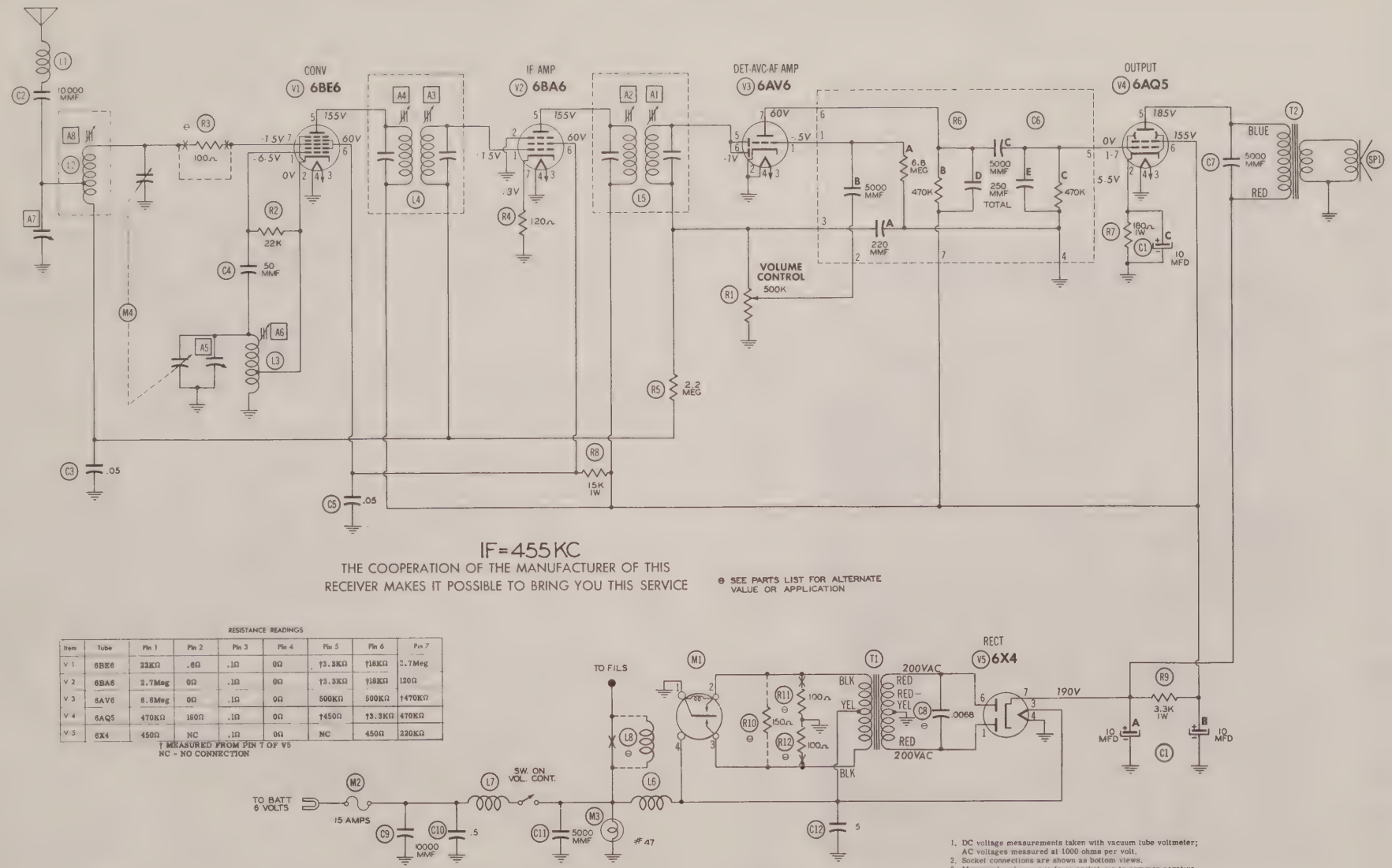


DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW



ALLSTATE MODEL 6240 (Ch. 528.62400)



IF=455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BE6	22KΩ	.6Ω	.1Ω	0Ω	†3.3KΩ	†18KΩ	2.7Meg
V 2	6BA6	2.7Meg	0Ω	.1Ω	0Ω	†3.3KΩ	†18KΩ	120Ω
V 3	6AV6	6.8Meg	0Ω	.1Ω	0Ω	500KΩ	500KΩ	†470KΩ
V 4	6AQ5	470KΩ	180Ω	.1Ω	0Ω	†450Ω	†3.3KΩ	470KΩ
V 5	6X4	450Ω	NC	.1Ω	0Ω	NC	450Ω	220KΩ

† MEASURED FROM PIN 7 OF V5
NC - NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 6.3 volts for voltage readings.
5. Nominal tolerance on components values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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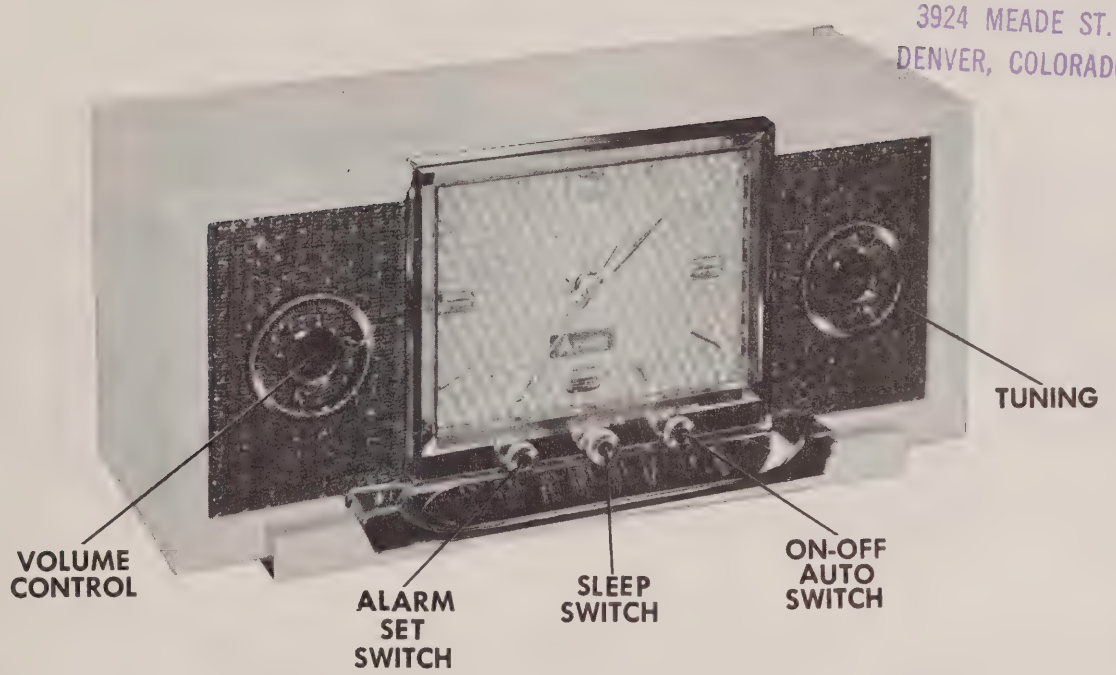
ARVIN
MODEL 857T (Ch. RE378)



ARVIN
MODEL 857T (Ch. RE378)

TRADE NAME	Arvin Model 857T (Ch. RE378)
MANUFACTURER	Arvin Industries, Inc., Columbus, Ind.
TYPE SET	AC Operated AM Superheterodyne Receiver With Electric Clock
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-60 Cycles — RATING .24 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MMF	High side to pin 7 (grid) of 12BE6 (V1). Low side to chassis.	455KC (400∿Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	Direct	Loop	1650KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	"	1400KC	"	"	A6	"
4.	"	"	1000KC	1000KC	"		Fan rotor plates for maximum output.
5.	"	"	600KC	600KC	"		"

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PARTS LIST AND DESCRIPTIONS

ARVIN
MODEL 857T (Ch.RE378)

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: ARVIN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF Amp.	12AV6	12AV6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ARVIN PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	50	150	42586			TCD-497	TDL-5030-150	FMD-301	
B	30	150							
C2	.047	200	42428	DF-503		PT4147	IMP2-S47	3302147	
C3A	220								
B	2000								
C	5000		♦41696	♦PC-150	♦1408-01				
D	250								
E									
C4	10000			DD-103	811-01	DC-511	IMP6-D1		
C5	.1	200		DF-104		PT401	IMP2-P1	330201	
C6	.047	400		DF-503		PT4147	IMP4-S47	3304147	
C7	.047	400		DF-503		PT4147	IMP4-S47	3304147	
C8	.047	200	42428	DF-503		PT4147	IMP2-S47	3302147	

♦ Items C3A, C3B, C3C, C3D, C3E, R4A, R4B and R4C are combined in one unit.
When replacing items separately, C3D and C3E should total 250MMF.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	A42429	Q13-133	A47-500K-Z	B-60	U-48	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	NotReq.	Attach to R1A

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	NOTES
R2	22KΩ	½		BTS-22K	
R3	2.2Meg	½		BTS-2.2Meg	
R4A	6.8Meg	½		BTS-6.8Meg	
B	470KΩ	½	♦41696	BTS-470K	
C	470KΩ	½		BTS-470K	

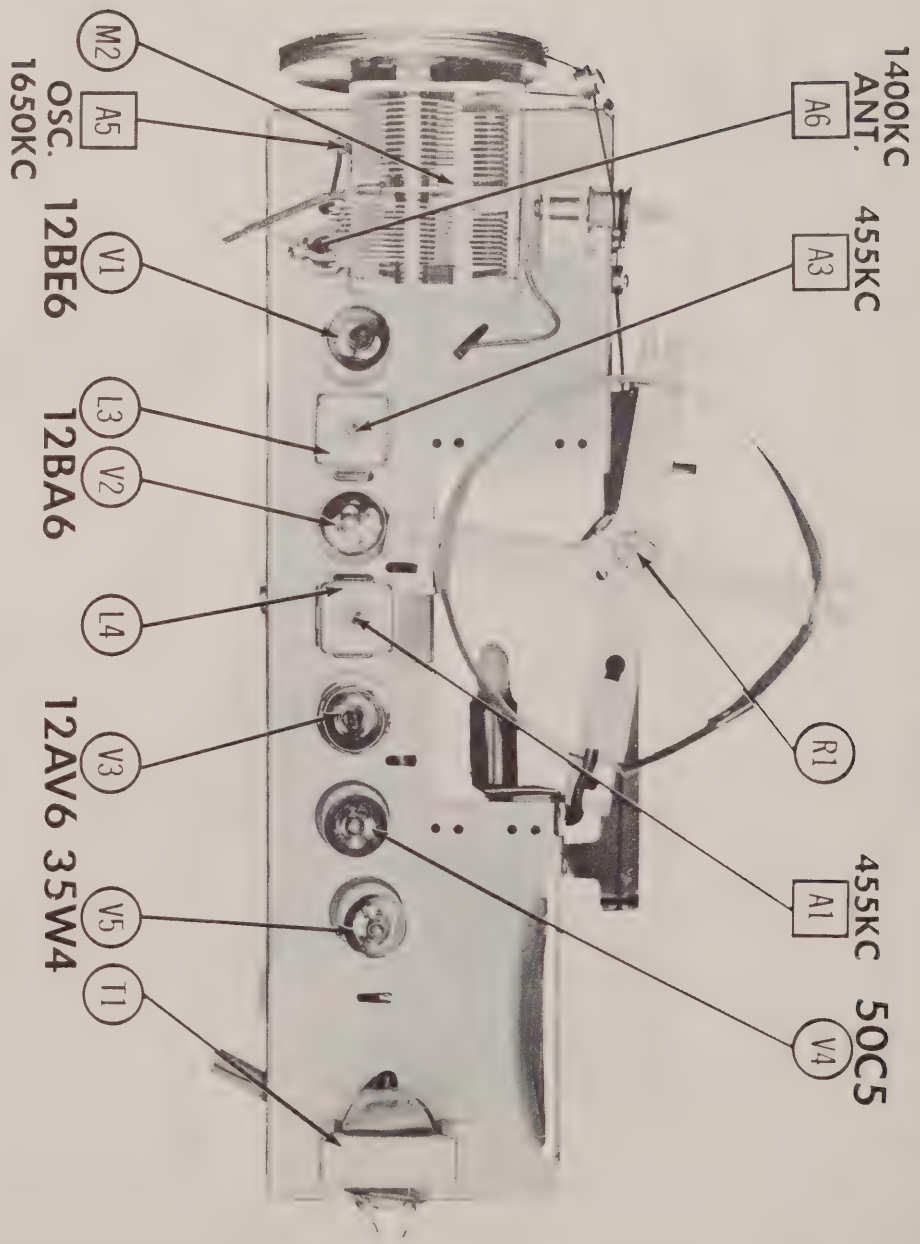
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	NOTES
R5	120Ω	½		BTS-120	
R6	100KΩ	½		BTS-100K	
R7	1200Ω	1		BTA-1200	
R8	47Ω	½	19177		
R9	330KΩ	½		BTS-330K	

♦ Items R4A, R4B, R4C, C3A, C3B, C3C, and C3D are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: ARVIN PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T1	2.3KΩ	3.3Ω	42700-1	A-3332	A-3025	S-12X	Z1101	26S58	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	ARVIN PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.3Ω	C22875	ST-113 Mod. P4-X	4A07	

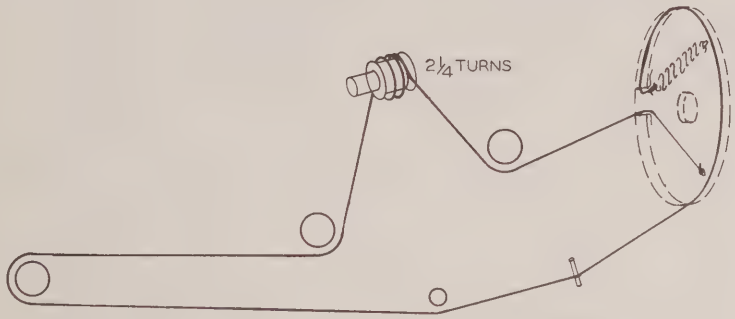
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	ARVIN PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	.4Ω		42680-1				Includes cabinet back
L2	Osc. Coil	.5Ω	6.5Ω	25192-1	14-1073 *		69-OSC	
L3	Input IF	14Ω	14Ω	40845-1	16-6758	BC-352	12-C1	
L4	Output IF	14Ω	14Ω	40845-1	16-6758	BC-353	12-C2	

* Leads sufficient mounting support.

MISCELLANEOUS

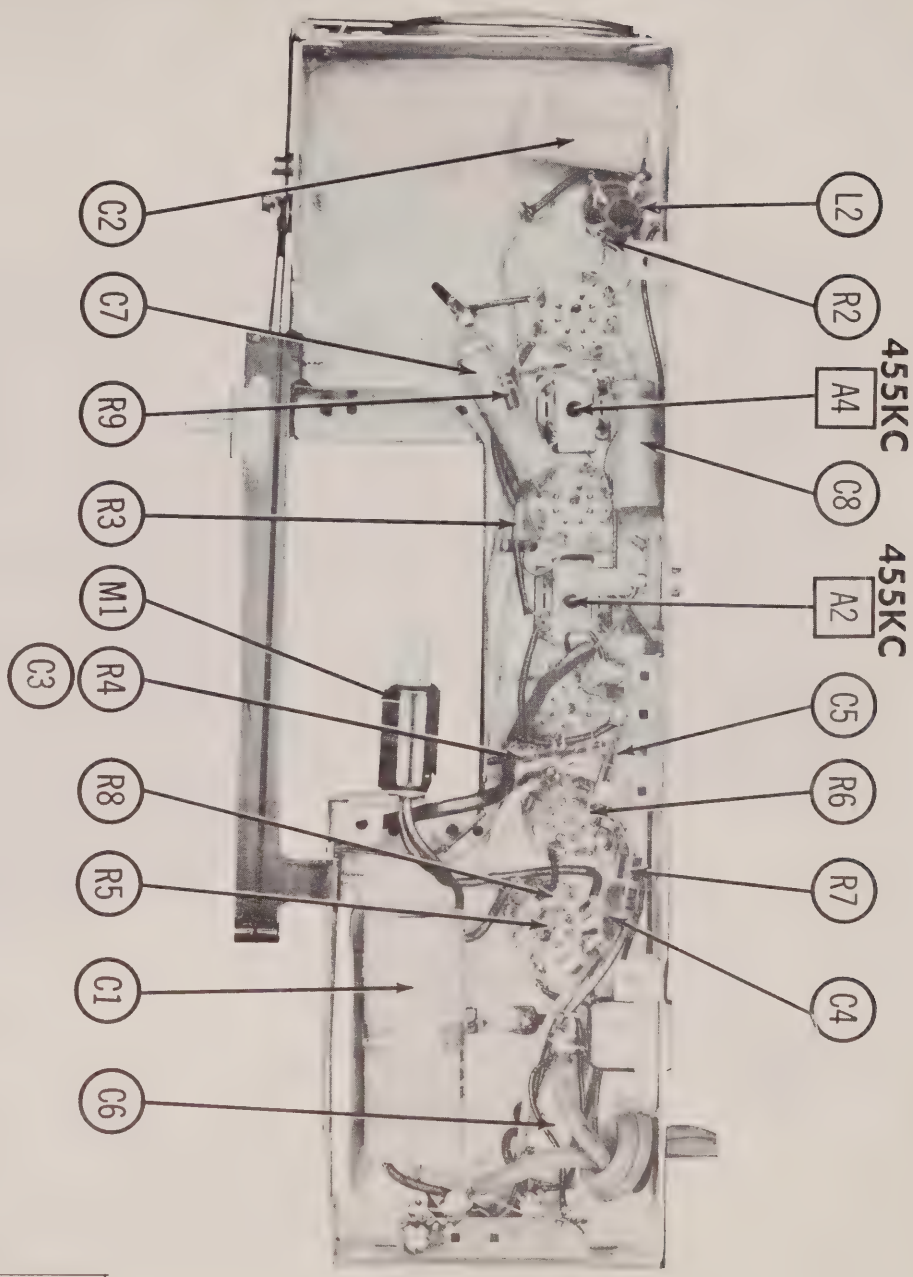
ITEM No.	PART NAME	ARVIN PART No.	NOTES
M1	Dial Light		#47, Bayonet
M2	Tuning Cap.	42428	2 Gang - 35-370MMF, 28-175MMF
M3	Clock	42425	
	Cabinet	42681-1	Ivory
	Cabinet	42681-2	Willow green
	Cabinet	42681-3	Sandalwood
	Cabinet	42681-4	Ebony
	Grille Assy.	42682-1	2 required
	Grille Assy.	42682-2	2 required (Ebony model only)
	Knob	42413	Volume & tuning
	Knob	42414	Clock
	Crystal	42417	Radio Dial
	Crystal	42411	Clock
	Pointer	24226	Radio Dial



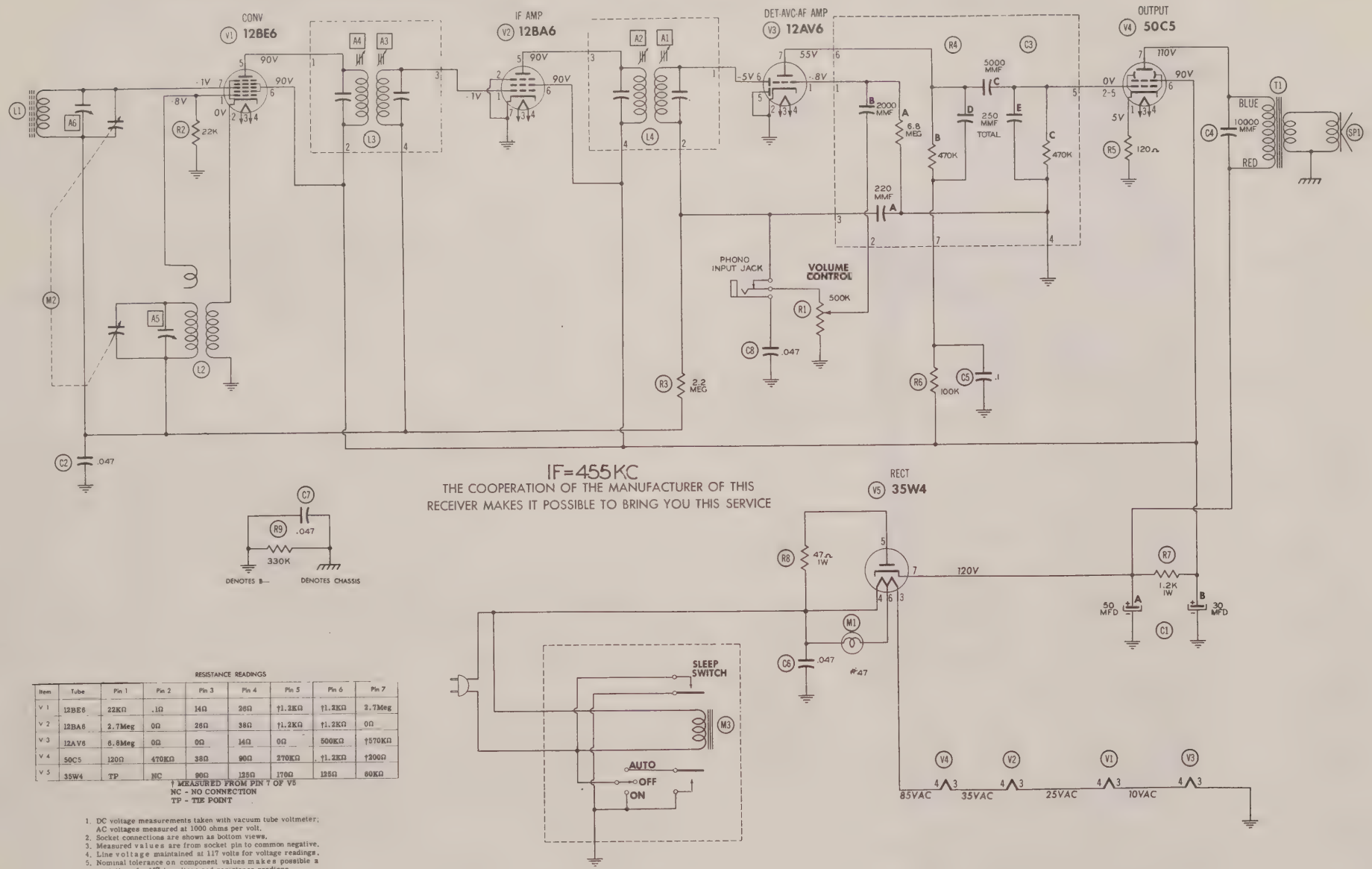
TUNING GANG FULLY CLOSED

DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW



ARVIN MODEL 857T (Ch. RE378)



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.1Ω	14Ω	26Ω	†1.2KΩ	†1.2KΩ	2.7Meg
V 2	12BA6	2.7Meg	0Ω	26Ω	38Ω	†1.2KΩ	†1.2KΩ	0Ω
V 3	12AV6	6.8Meg	0Ω	0Ω	14Ω	0Ω	500KΩ	†570KΩ
V 4	50C5	120Ω	470KΩ	38Ω	90Ω	270KΩ	†1.2KΩ	†200Ω
V 5	35W4	TP	NC	90Ω	135Ω	170Ω	125Ω	60KΩ

† MEASURED FROM PIN 7 OF V5
NC - NO CONNECTION
TP - TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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DENVER, COLORADO

COLUMBIA RECORDS
MODEL 326

COLUMBIA RECORDS
MODEL 326

TRADE NAME	Columbia Records Model 326
MANUFACTURER	Columbia Records, 799 Seventh Ave., New York 19, N.Y.
TYPE SET	AC Operated Phono Amplifier With 3 Speed Automatic Record Changer
TUBES (Four)	Types 12AX7 Preamp., 12AX7 AF Amp.-Phase Inverter, (2) 6V6GT Output
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .33 Amp. @ 117 Volts AC

RECORD CHANGER UNIT - WEBSTER-CHICAGO MODEL 113

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

COLUMBIA RECORDS
MODEL 326

ITEM No.	USE	REPLACEMENT DATA: Columbia Records PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Preamplifier	12AX7	12AX7	9A	
V2	AF Amplifier-Phase Inverter	12AX7	12AX7	9A	
V3	Audio Output	6V6GT	6V6GT	7S	
V4	Audio Output	6V6GT	6V6GT	7S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Columbia Records PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1	20	250				TC55	TD-20-250	FM-2520	Note 1
C2A	▲20	250				FP-396.1	TM-403020-450	Q-210	Note 2
B	▲40	350							
C	■20	350							
C3	20	250				TC55	TD-20-250	MT-2520	Note 3
C4	.05	200		DF-503		PT415	IMP2-S5	330215	
C5	.001	600		D6-102	811-102	PT621	IMP6-D1	330621	
C6	.05	400		DF-503		PT415	IMP4-S5	330415	
C7	.05	400		DF-503		PT415	IMP4-S5	330415	
C8	.003			D6-302	811-003	PT623	IMP6-D3	330623	Note 4
C9	.0022	600		D6-222	811-0022	PT6222	IMP6-D22	3306222	
C10	400			MD-401	GP2K-401	UC-5339		K-1340	
C11	400			MD-401	GP2K-401	UC-5339		K-1340	
C12	.01	400		D6-103	811-01	PT411	IMP4-S1	330411	
C13	.01	400		D6-103	811-01	PT411	IMP4-S1	330411	
C14	.05	200		DF-503		PT415	IMP2-S5	330215	
C15	.1	600		DF-104		PT601	IMP6-P1	330601	
C16	.1	600		DF-104		PT601	IMP6-P1	330601	
C17	.1	600		DF-104		PT601	IMP6-P1	330601	
C18	.01	400		D6-103	811-01	PT411	IMP4-S1	330411	
C19	.01	400		D6-103	811-01	PT411	IMP4-S1	330411	
C20	100			D6-101	GP2K-101	UC-531		K-1310	Note 4
C21	.0047	400		D6-472	811-0047	PT6247	IMP6-D47	3306247	
C22	.1	600		DF-104		PT601	IMP6-P1	330601	
C23	.05	400		DF-503		PT415	IMP4-S5	330415	Note 5
C24	.01			D6-103	811-01	PT411	IMP4-S1	330411	

Note 1. Some versions use C1 as 20MFD @ 150 Volts (part #CS551).
Note 2. Some versions use C2A as 40MFD @ 150 Volts (part #CS552).
Note 3. Some versions use C3 as 30MFD @ 250 Volts (part #CS553).
Note 4. Not used in all versions.
Note 5. Some versions may use a .01MFD capacitor in this application.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Columbia Records PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	1Meg	½	BA013-053					Volume - tapped @ 500KΩ & 800KΩ
R2A	250KΩ	½	BA013-048			ABT-56		Treble - tapped @ 150KΩ
B	Shaft		Not Req.			AK-4		Attach to R2A
R3A	1Meg	½	BA011-1417	Q11-137	A47-1Meg-S	AB-69	U-54.	Bass
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R3A

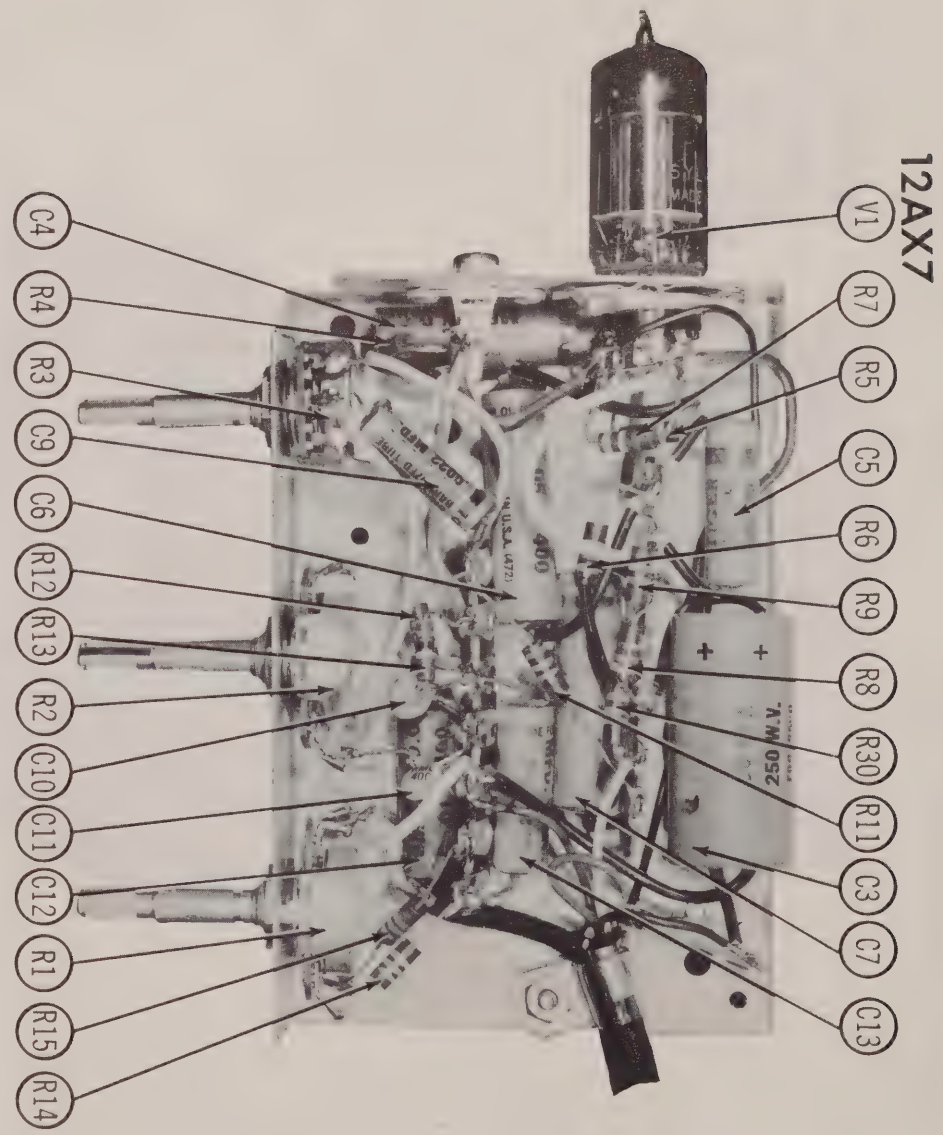
RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Columbia Records PART No.	IRC PART No.	NOTES
R4	10KΩ	½		BTS-10K	
R5	3.3Meg	½		BTS-3.3Meg	
R6	68KΩ	½		BTS-68K	
R7	3.3Meg	½		BTS-3.3Meg	
R8	47KΩ	½		BTS-47K	
R9	270KΩ 5%	½		BTS-270K 5%	
R10	33KΩ	½		BTS-33K	Note 1
R11	68KΩ	½		BTS-68K	
R12	33KΩ	½		BTS-33K	Note 2

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Columbia Records PART No.	IRC PART No.	NOTES
R13	100KΩ	½		BTS-100K	
R14	33KΩ	½		BTS-33K	
R15	33KΩ	½		BTS-33K	
R16	10Meg	½		BTS-10Meg	
R17	100Ω	½		BTS-100	
R18	270KΩ 5%	½		BTS-270K 5%	
R19	10Meg	½		BTS-10Meg	
R20	270KΩ 5%	½		BTS-270K 5%	
R21	270KΩ 5%	½		BTS-270K 5%	

Note 1. Not used in some versions.
Note 2. Some versions use a 22KΩ resistor in this application.

PRE-AMP CHASSIS - BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA Columbia Records PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R22	100KΩ	½		BTS-100K	
R23	150Ω	2			
R24	270KΩ 5%	½		BTS-270K 5%	
R25	470Ω	½		BTS-470	
R26	6.8Meg	½		BTS-6.8Meg	
R27	10KΩ	2		BTB-10K	
R28	10KΩ	2		BTB-10K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA Columbia Records PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R29	6.8Meg	½		BTS-6.8Meg	
R30	68KΩ	½		BTS-68K	
R31	22KΩ	½		BTS-22K	
R32	220Ω	3			
R33	4.7Ω	1			Note 1
R34	75Ω	5		1 3/4A-75	Note 1

Note 1. Not used in some versions.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA Columbia Records PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC @.33A	122VAC @.073A	6.3VAC @1.37A		CS548					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Columbia Records PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T2	9.2KΩ CT	1.75Ω	CS549	A-3852	A-2904	S-19Z	Z1010	26S46	

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	REPLACEMENT DATA Columbia Records PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	6"	PM	3.5Ω	CS561		6A31L.F ①	① When ordering specify open air resonant frequency of 85Ω
SP2	6"	PM	3.5Ω	CS561		6A31L.F ①	* Electrostatic speakers
SP3		*		CS560			
SP4		*		CS560			

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA Columbia Records PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.073ADC	CS500	1004A	RS100	6S100	5M1	100	
M2	.073ADC	CS500	1004A	RS100	6S100	5M1	100	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA Columbia Records PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	REMARKS
M3						

PHONO NEEDLE

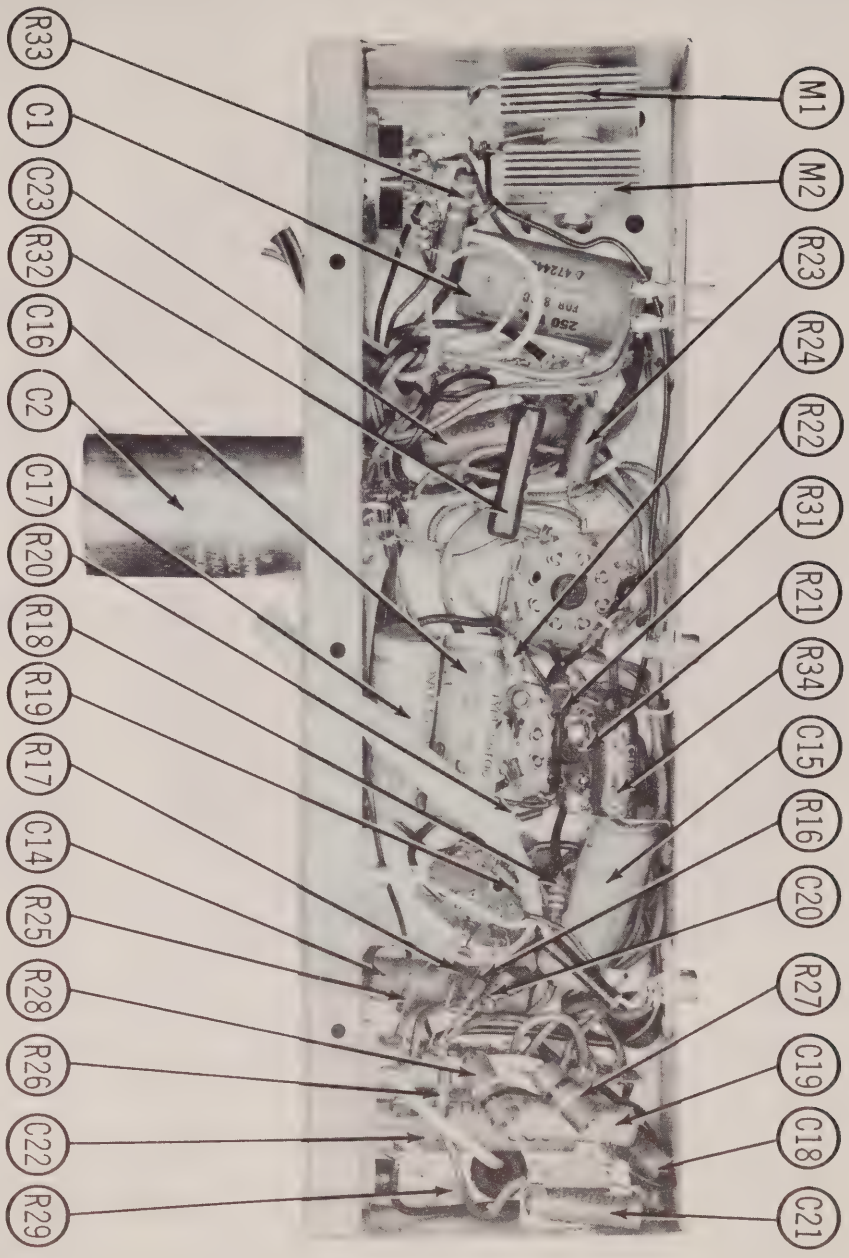
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

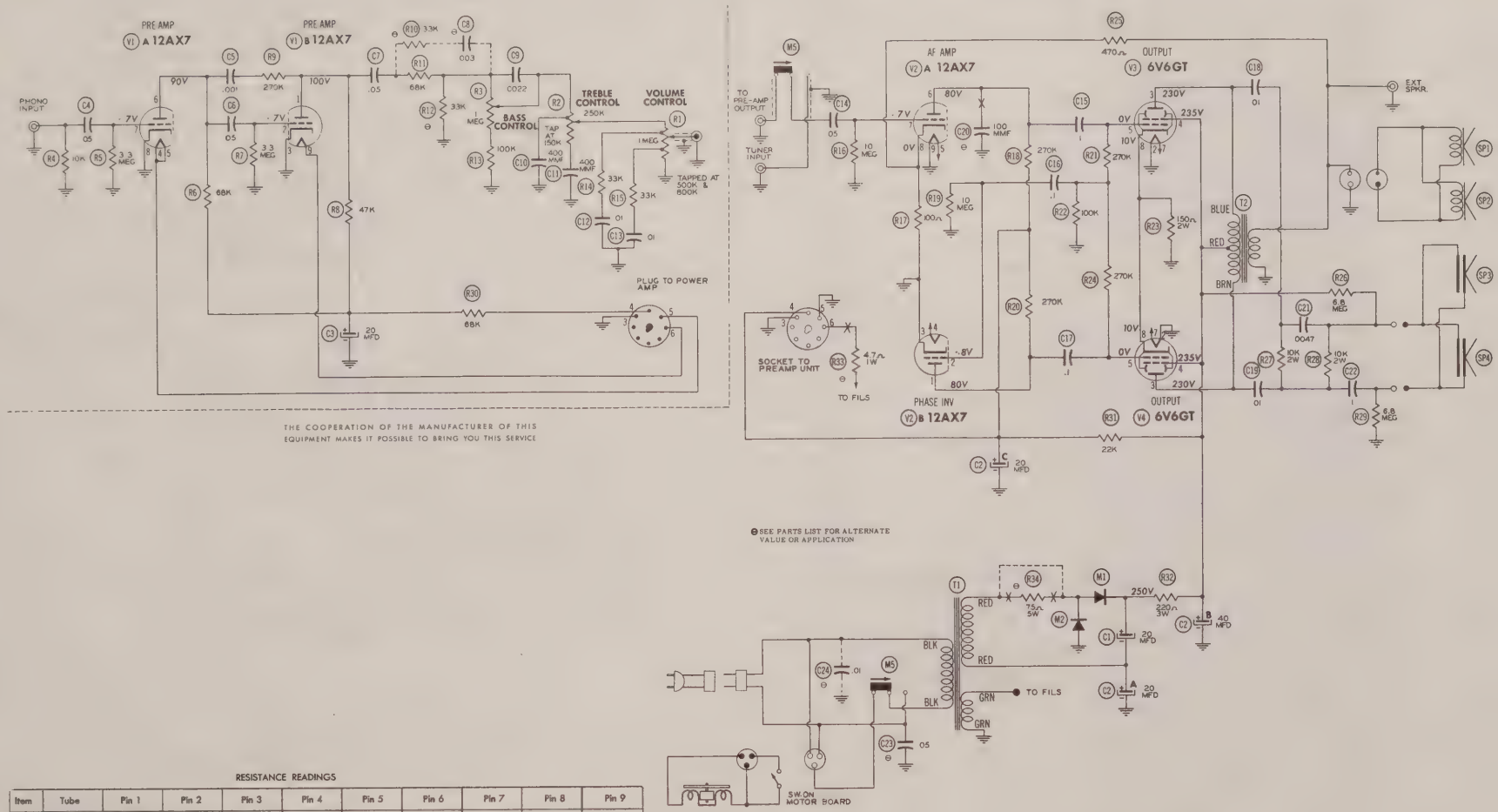
ITEM No.	REPLACEMENT DATA Columbia Records PART No.	JENSEN PART No.	PERMO PART No.	WALCO PART No.	REMARKS
M4		†G-11 or ♦†G-11SD or ♦G-11D	†AC-410 or ♦†AC-410D1 or ♦AC-410D	†W-66TPS or ♦†W-66DS or ♦W-66TPD	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	Columbia Records PART No.	NOTES
M5	Switch	CS547	Tuner -Phono (DPDT-Slide Type)
	Cabinet	CS566	Specify color
	Knob	CS536	Control - 3 used (Specify color)

POWER AMP CHASSIS-BOTTOM VIEW





THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AX7	†137KΩ	3.3Meg	0Ω	0Ω	0Ω	†158KΩ	3.3Meg	0Ω	.1Ω
V 2	12AX7	†292KΩ	10Meg	0Ω	.1Ω	.1Ω	†292KΩ	10Meg	100Ω	0Ω
V 3	6V6GT	TP	0Ω	†400Ω	†220Ω	370KΩ	TP	.1Ω	150Ω	
V 4	6V6GT	TP	0Ω	†400Ω	†220Ω	370KΩ	TP	.1Ω	150Ω	

† MEASURED FROM JUNCTION OF M1 AND R32
TP - TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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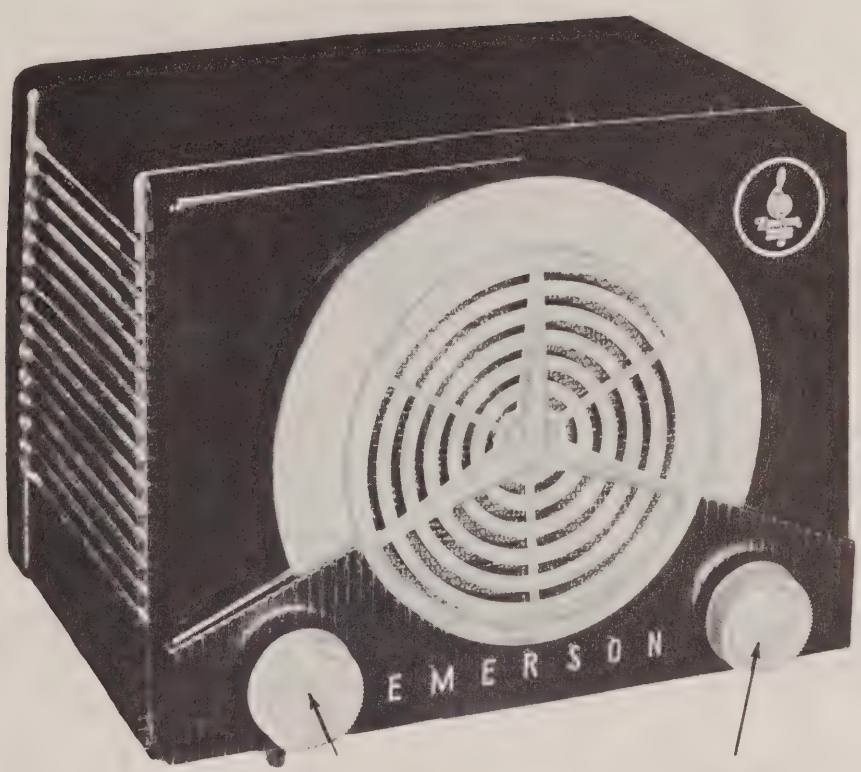
EMERSON
MODEL 808B (Ch. 120189-B)



EMERSON
MODEL 808B (Ch. 120189-B)

TRADE NAME	Emerson Model 808B (Ch. 120189-B)
MANUFACTURER	Emerson Radio & Phono. Corp., 111 Eighth Ave., New York, N. Y.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-DC RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC - 1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.005MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400∿ Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2	Direct	Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3	"	"	1400KC	Tune to 1400KC signal.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amp.	12BA6	12BA6	7BK	
V3	Det-AVC-AF Amp.	12AV6	12AV6	7BT	12AT6 used as alternate
V4	Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	50	150	925251			TCD-497	TDL-5030-150	FMD-301	
B	30	150							
C2	.047	400	923554	DF-503		PT4147	IMP4-S5	3304147	
C3A	220		♦923028						
B	2000								
C	5000								
D	500								
E									
C4	.02	400	923524	DF-203	817-02	PT412	IMP4-S2	330412	
C5	.047	400	923554	DF-503		PT4147	IMP4-S5	3304147	
C6	.047	400	923554	DF-503		PT4147	IMP4-S5	3304147	

♦ Items C3A, C3B, C3C, C3D, C3E, R5A, R5B and R5C are combined in one unit.
When replacing items separately, C3D and C3E should total 500MMF.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	390246	Q11-133	A47-500K-S	AB-616	U-50	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWE-12	KB-1	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R2	22KΩ	½		BTS-22K	
R3	120Ω	½	340272	BTS-120	
R4	3.3Meg	½	351332	BTS-3.3Meg	
R5A	6.8Meg	½	♦923028	BTS-6.8Meg	
B	470KΩ	½		BTS-470K	
C	470KΩ	½		BTS-470K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R6	150Ω	½	340292	BTS-150	
R7	3.3Ω	2	394156		
R8	39Ω	½	340152	BTS-39	
R9	1500Ω	1	380532	BTA-1500	
R10	18Ω	½	340072	BTS-18	

♦ Items R5A, R5B, R5C, C3A, C3B, C3C, C3D and C3E are combined in one unit.

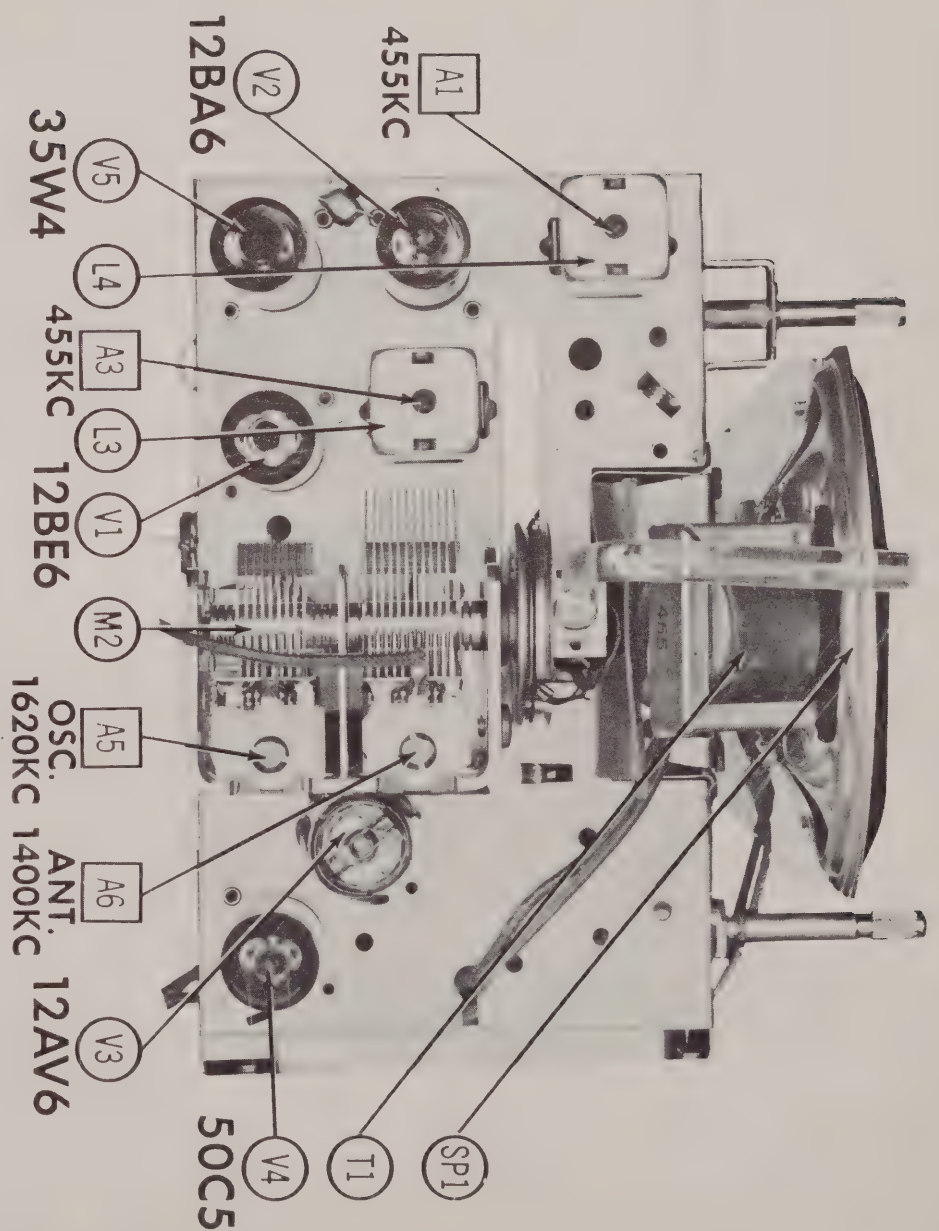
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: EMERSON PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T1	2.4KΩ	3.2Ω	Part of speaker	A-3332	A-3025	S-12X	Z1101	26S58	

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: EMERSON PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3.2Ω	180131			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

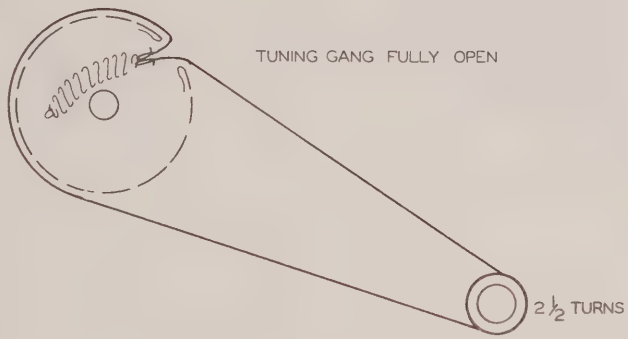
COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: EMERSON PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Ant. Coil	.4Ω		700098				
L2	Osc. Coil	.5Ω	6.5Ω	716075	14-1073		69-Osc.*	
L3	Input IF	17Ω	17Ω	720033	16-6758	BC-352	12-C1	
L4	Output IF	17Ω	17Ω	720033	16-6758	BC-353	12-C2	

* Leads sufficient mounting support.

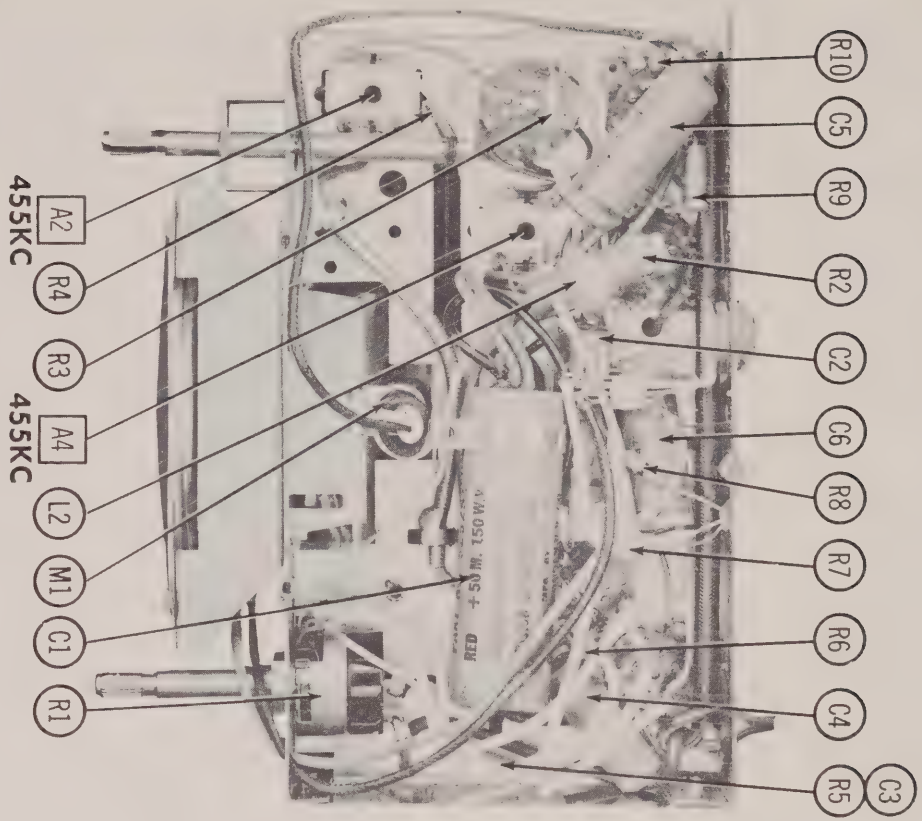
MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M1	Dial Light	807000	#47, Bayonet
M2	Tuning Cap.	900089	2 Gang (32-375MMF; 32-180MMF)
	Cabinet	140484	Ivory
	Cabinet	140484A	Ebony
	Cabinet	140484B	Cherry Red
	Cabinet	140484E	Forest Green
	Cabinet	140484K	Flame
	Cabinet	140484L	Maroon
	Cabinet	140484M	Cloud Grey
	Knob	460416	Gold
	Knob	460416A	Clear
	Radio Dial & Grille	460551	
	Grille Cloth	470752	
	Jack	508007	Ear Phone

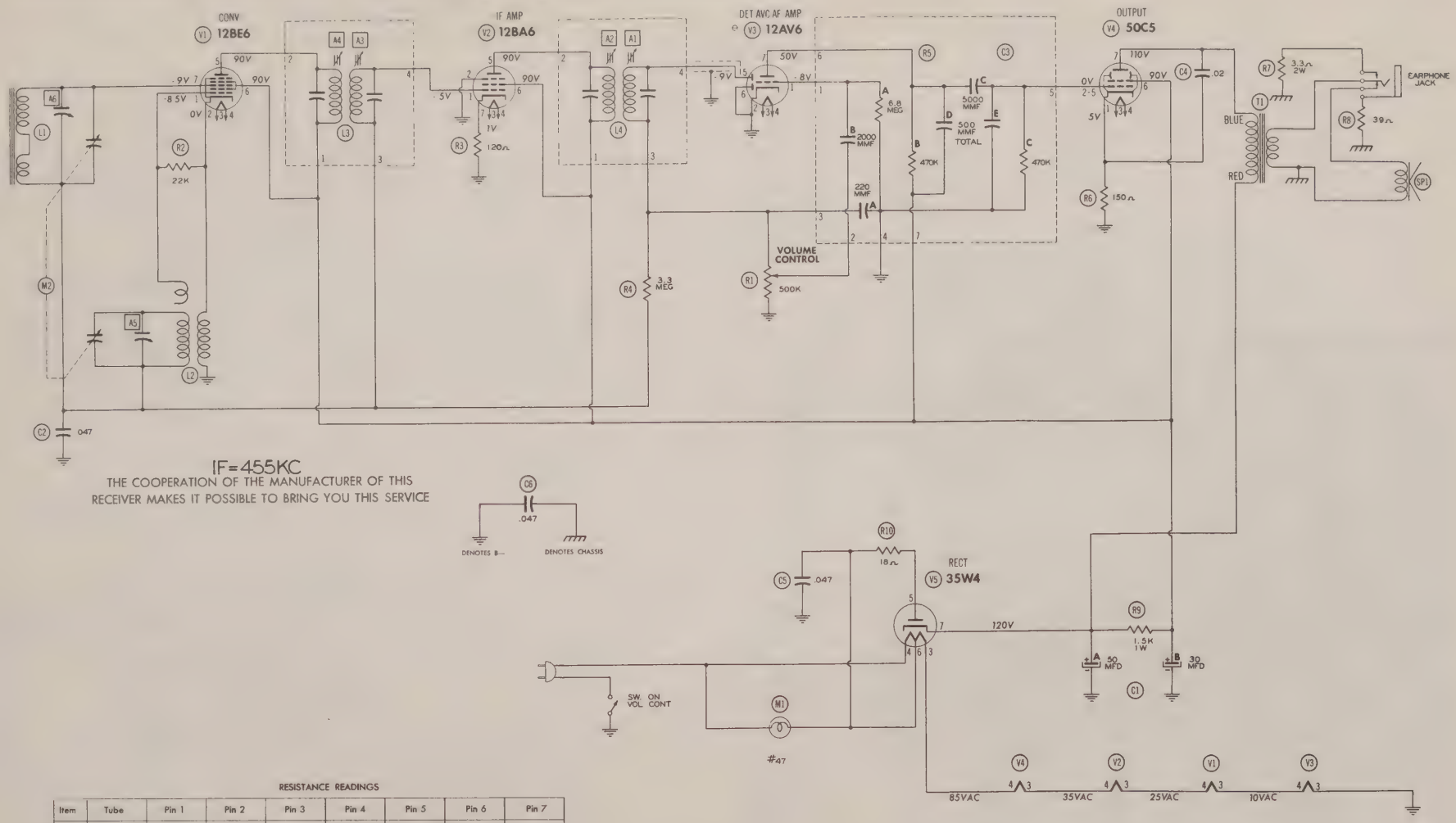


DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW



EMERSON
MODEL 808B (Ch. 120189-B)



IF=455KC

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RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.6Ω	12Ω	24Ω	†1.5KΩ	†1.5KΩ	3.8Meg
V 2	12BA6	3.8Meg	0Ω	24Ω	36Ω	†1.5KΩ	†1.5KΩ	120Ω
V 3	12AV6	6.8Meg	0Ω	0Ω	12Ω	500KΩ	0Ω	†470KΩ
V 4	50C5	150Ω	470KΩ	36Ω	86Ω	470KΩ	†1.5KΩ	†200Ω
V 5	35W4	NC	NC	86Ω	†17Ω	128Ω	110Ω	35KΩ

† MEASURED FROM PIN 7 OF V5.
NC - NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements

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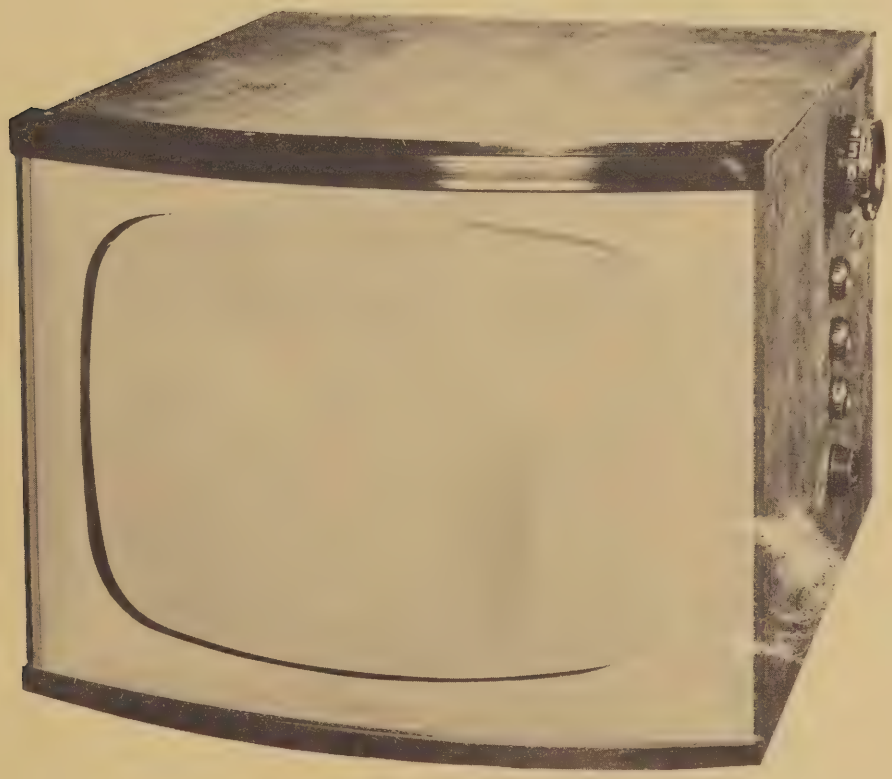

MODEL 1060D

EMERSON MODELS 1030D, 1032D (Ch. 120220-D), 1058D, 1060D, 1062D, 1064D (Ch. 120239-D)

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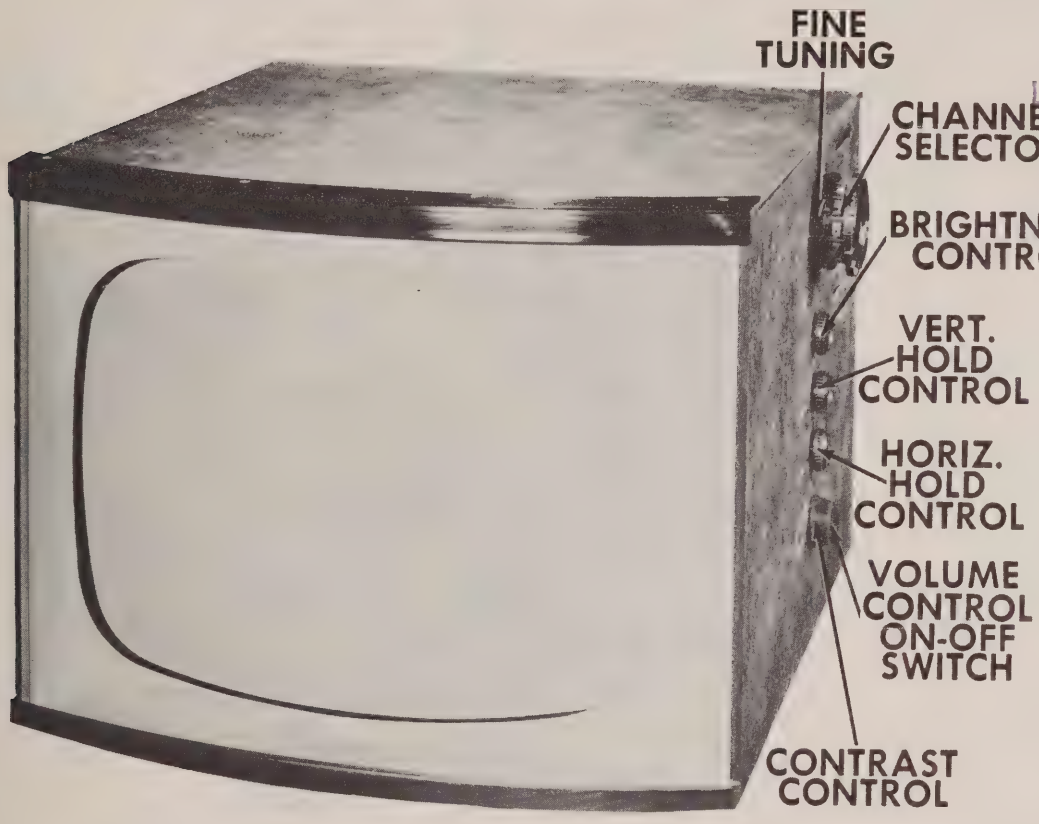

EMERSON MODEL 1060D

TRADE NAME	Emerson	MODEL	CHASSIS
		1030D, 1032D	120220-D
		1058D, 1060D, 1062D, 1064D	120239-D
MANUFACTURER	Emerson Radio Radio & Phono Corp., 111 8th. Ave., New York, N.Y.		
TYPE SET	Television Receiver		
TUBES	Eighteen		
POWER SUPPLY	110-120 Volts AC-60 Cycles		RATING 1.52 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

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EMERSON MODELS 1030D, 1032D (Ch. 120220-D), 1058D, 1060D, 1062D, 1064D (Ch. 120239-D)

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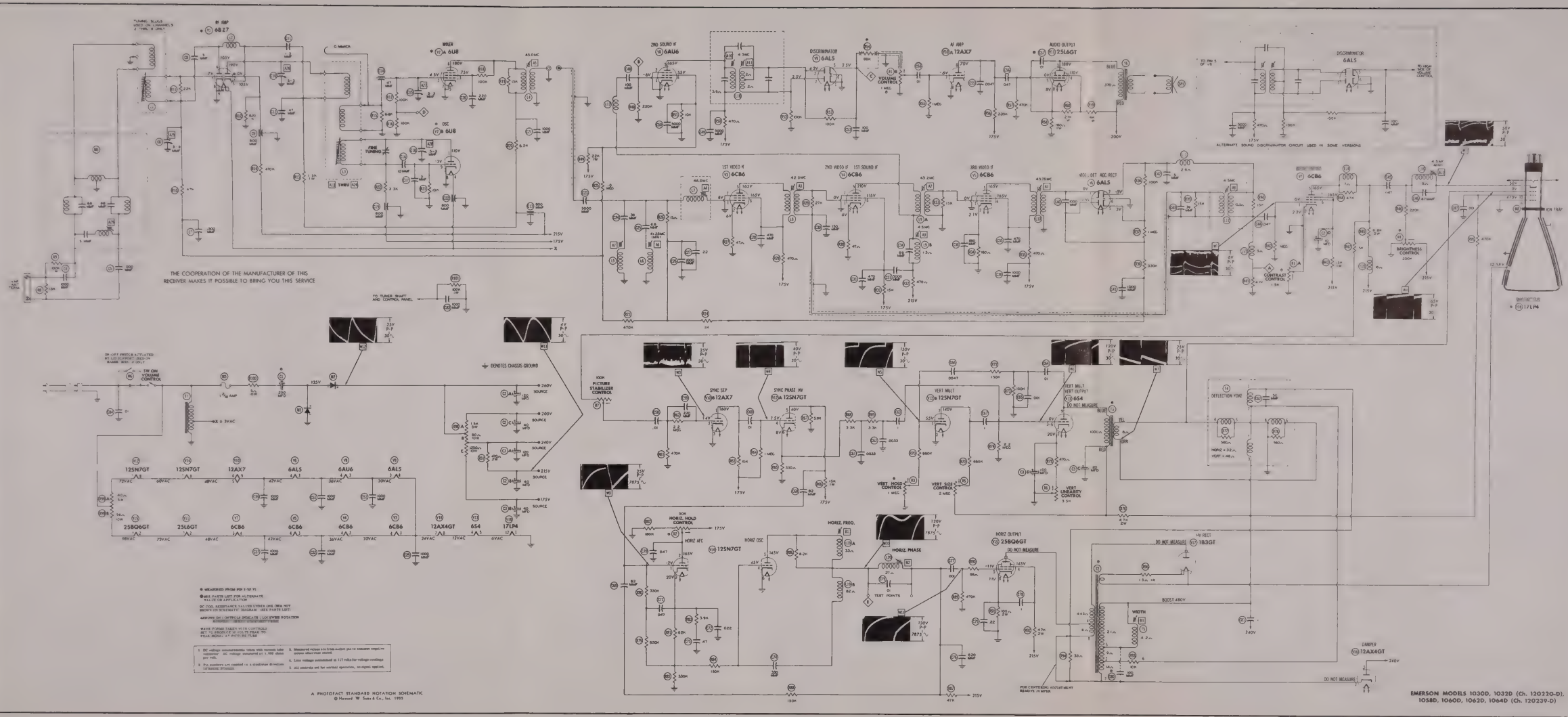
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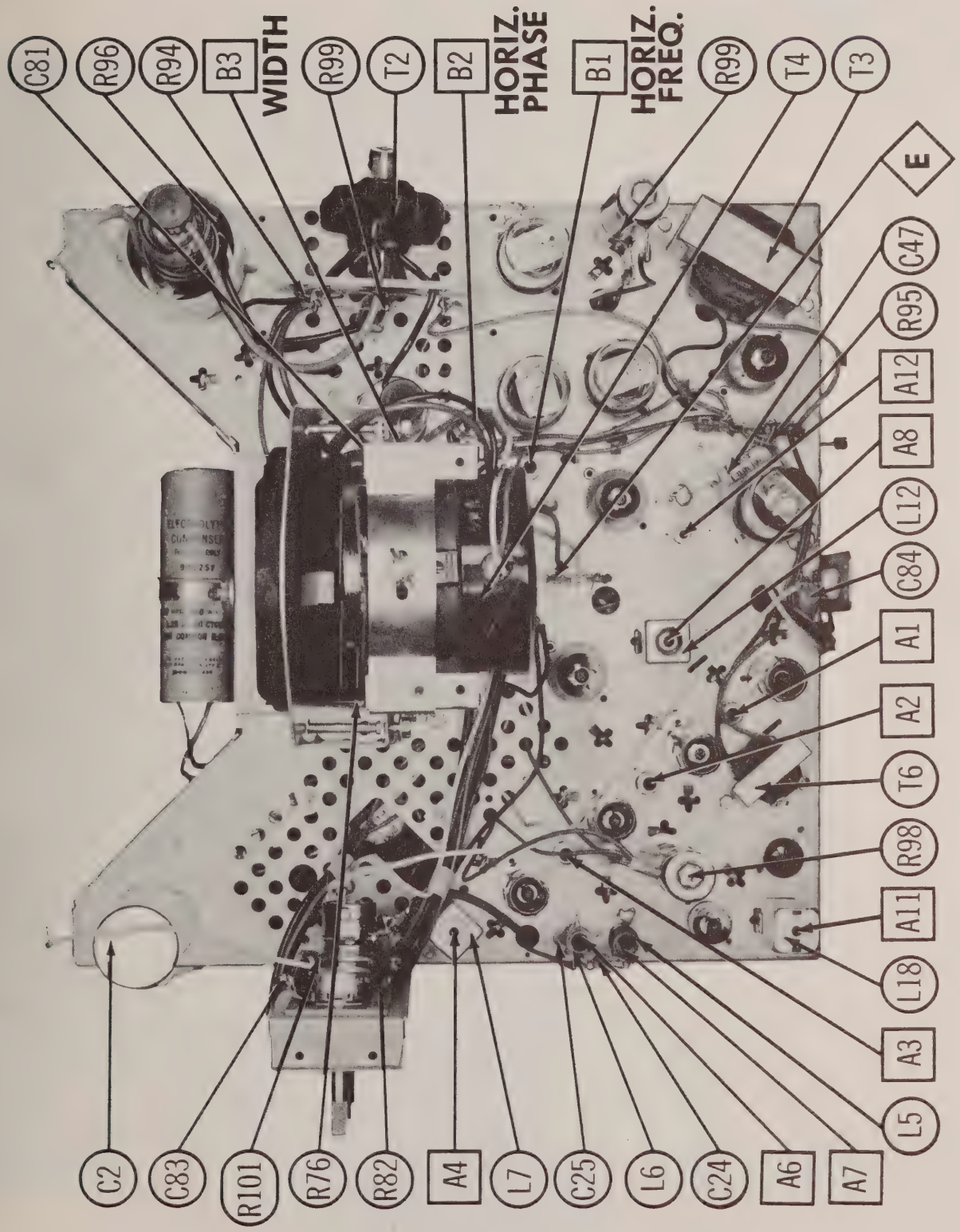

CHASSIS TOP VIEW

EMERSON MODELS 1030D, 1032D
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CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

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TUBE PLACEMENT CHART

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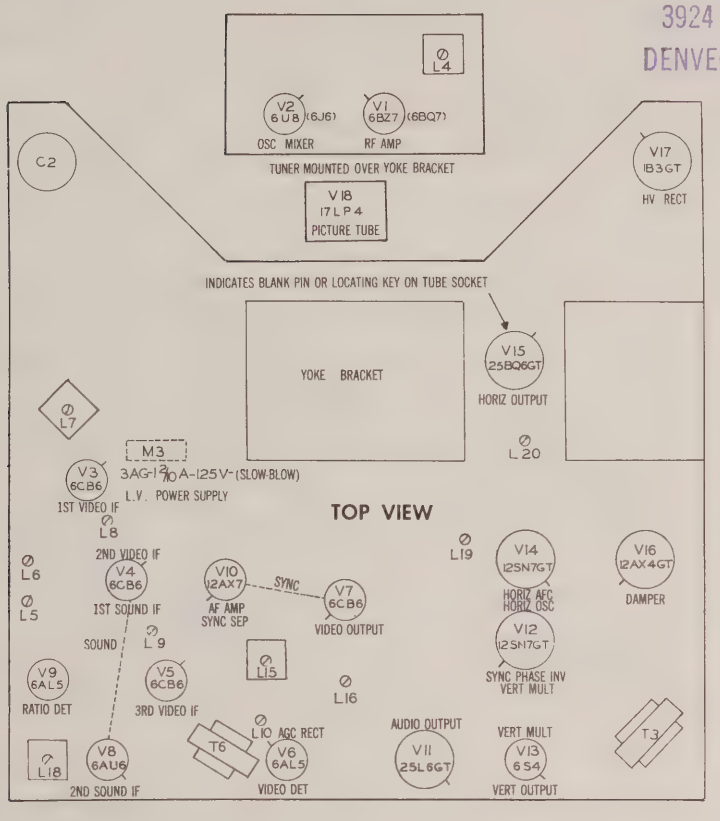


TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

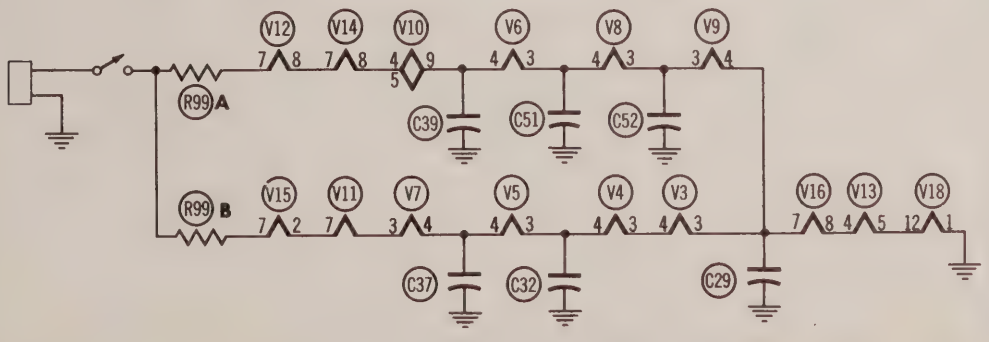
POWER SUPPLY FAILURE
No raster, no sound - **Selenium Rectifier (M1 & M2)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V2, V3, V4**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V5, V6, V7, V18**
Has pic, no sound - **V8, V9, V10, V11**

SYNC FAILURE
No vert. sync - **V12, V13**
No horiz. sync - **V12, V14**
No vert. or horiz. sync - **V10, V12**

SWEEP FAILURE
No raster, has sound - **V14, V15, V16, V17, V18**
No vertical deflection - **V12, V13**
Poor vert. linearity or foldover - **V12, V13**
Poor horiz. linearity or foldover - **V14, V15, V16**
Narrow picture - **V14, V15, V16, V17, M1, M2**
Vert. off freq. - **V12, V13**
Horiz. off freq. - **V12, V14**

NOTE: Since this receiver employs tubes used in series-parallel filament network, an open filament in any tube in series may cause the set to be inoperative. (See circuit below).



EMERSON MODELS 1030D, 1032D (Ch. 120220-D), 1058D, 1060D, 1062D, 1064D (Ch. 120239-D)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

An isolation transformer should be used for alignment. If not available, make sure that the power supply is inserted to chassis plug of the correct polarity. This is necessary because one side of chassis is connected to the AC line.

VIDEO IF ALIGNMENT

Remove V1 from its socket to avoid the possibility of undesirable beat response during alignment. Rotate channel selector knob to channel 12. Connect the negative lead of a 3 volt battery to the ungrounded side of C41. Connect positive lead to chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1	Direct	High side to ungrounded tube shield floating over converter tube. Low side to chassis.	Not used.	45.75MC (Unmod)	12	Use VTVM. DC probe to point (A). Common to chassis.	A1	Attenuate generator output for not more than 2 volts at VTVM. Adjust for maximum deflection.
2	"	"	"	43.2MC	"	"	A2	"
3	"	"	"	42.0MC	"	"	A3	"
4	"	"	"	45MC	"	"	A4, A5	"
5	"	"	"	41.25MC	"	"	A6	Increase generator output for desirable reading and adjust for minimum deflection.
6	"	"	"	47.25MC	"	Vert. amp. to point (A). Low side to chassis.	A7	Adjust for MINIMUM 400∿ indication on scope. Use high scope gain and generator output.

OVERALL VIDEO IF RESPONSE CHECK

Use only enough sweep generator output to produce usable pattern on scope. Leave biase connected as under "Video IF Alignment". Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7	Direct	High side to ungrounded shield floating over dummy converter tube. Low side to chassis.	44MC (10MC Swp)	41.25MC 45.75MC 47.25MC	12	Vert. amp. to point (A). Low side to chassis.		Check for response curve similar to Fig. 1. If necessary, retouch A1 thru A5 to obtain desired response. If video marker is too high, adjust A1. If too low, adjust A2.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Short pin 1 (grid) of 6CB6 (V3) to ground.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8	.01MFD	High side to pin 2 (plate) of 6AL5 (V6). Low side to chassis.	4.5MC (Unmod)	Any	DC probe thru 10KΩ to point (B). Common to chassis.	A8, A9	Adjust for maximum deflection.
9	.01MFD	"	"	"	DC probe to point (C). Common to chassis.	A10, A11	Detune A11 for maximum negative deflection. Adjust A10 for maximum deflection. Readjust A11 for zero reading on VTVM. A positive and negative reading will be obtained on either side of the correct setting. Remove short from pin 1 of 6CB6 (V3). Remove test equipment from set. Tune in a TV station with good audio. Note if buzz is present. If necessary readjust A11 SLIGHTLY for minimum buzz.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Short pin 1 (grid) of 6CB6 (V3) to ground.
Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8	.01MFD	High side to pin 2 (plate) of 6AL5 (V6). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp. thru 10KΩ to point (B). Low side to chassis.	A8, A9	Adjust for curve of maximum amplitude and symmetry similar to Fig. 2.
9	"	"	"	"	"	Vert. amp. thru 10KΩ to point (C). Low side to chassis.	A10, A11	Adjust A10 for maximum amplitude and straightness of crossover lines as in Fig. 3. Adjust A11 so that 4.5MC occurs at center of crossover lines. SLIGHTLY retouch A10 for maximum amplitude and straightness of crossover lines. Remove short from pin 1 of V3.

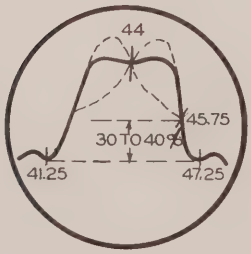


FIG.

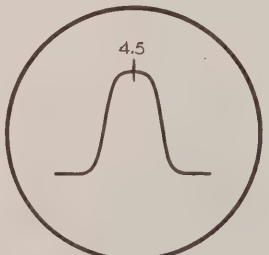


FIG.2

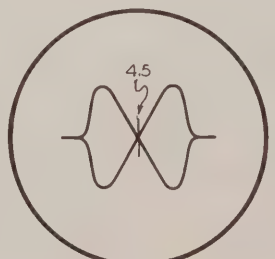


FIG.3

ALIGNMENT INSTRUCTIONS (cont)

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10	.01MFD	High side to point (A). Low side to chassis.	4.5MC (Unmod)	Any	DC probe thru detector (Fig. 4) to pin 11 of picture tube. Common to chassis.	A12	Adjust for minimum deflection.

OSCILLATOR ALIGNMENT

Complete oscillator alignment may not be necessary.
If the oscillator seems to be off frequency approximately the same amount for a majority of the channels, it may be necessary to correct them in one step using A28. It should be noted that this is an all channel adjustment for the oscillator section and should not be used to correct any one channel. If A28 will not bring in all channels well within the range of the fine tuning control, it will be necessary to adjust the channel strip adjustment for each channel that is off frequency.
The channel oscillator adjustment screws are reached through a hole just to the left of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel selector is turned to each channel. Replace shield over converter tube. Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. amp. to point (A). Low side to chassis.	A13	Advance gain so that the sound notch is visible on response curve. Adjust to place sound marker in trap notch. Video marker should fall at 30 to 40% response on opposite slope of response curve as in Fig. 5.
			213MC (10MC Swp)	211.25MC 215.75MC	13		A14	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A15	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A16	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A17	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A18	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A19	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A20	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A21	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A22	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A23	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A24	

RF AND MIXER ALIGNMENT

Connect bias as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to point (D). Low side to chassis.	A25, A26, A27	Adjust marker generator to provide a readable marker, but be sure it does not distort the response curve. Adjust for response similar to Fig. 6.
13	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response similar to Fig. 6. If marker fall below 70% on any channel make compromise adjustments of A25, A26 and A27 with channel switch set to that channel. Then recheck all other channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

IF TRAP ADJUSTMENT

This is a series resonant and can be adjusted in the field. It is for the purpose of eliminating any IF interference from nearby transmitters operating in the 40MC band. If interference is noted, turn to channel 2 and adjust A29 for minimum interference in the picture.

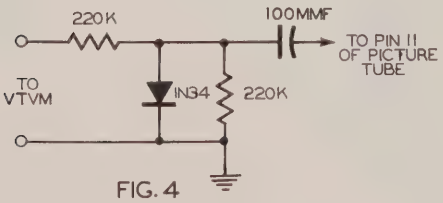


FIG. 4

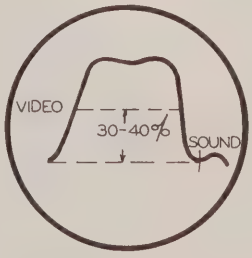


FIG. 5

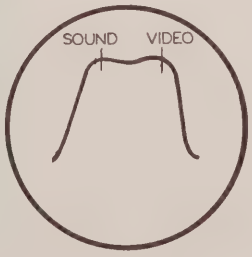
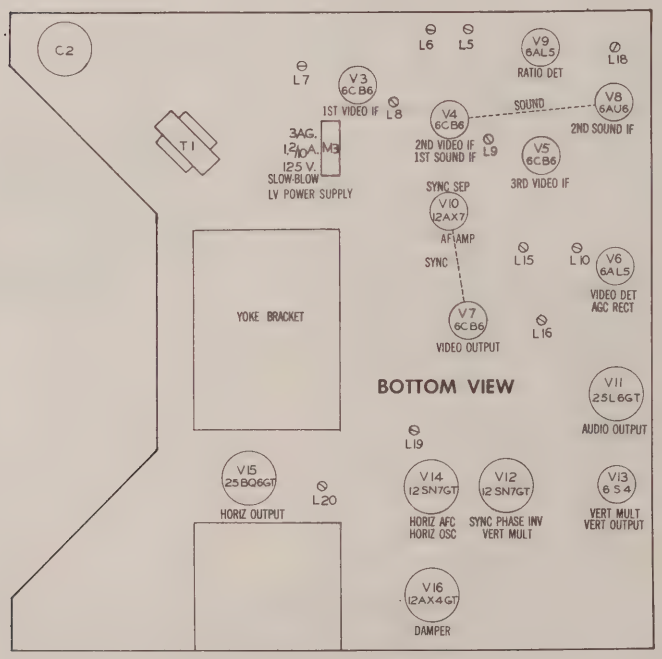


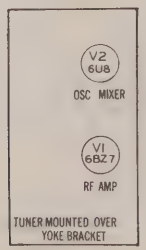
FIG. 6

RESISTANCE MEASUREMENTS

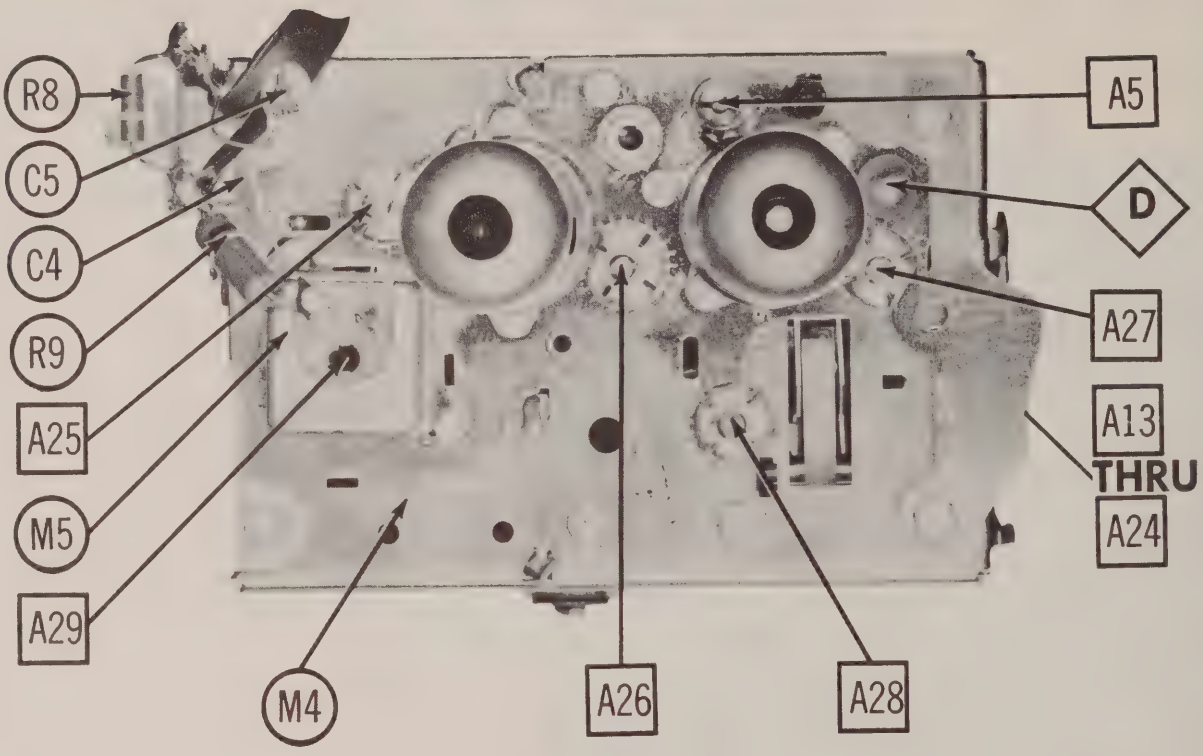
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BZ7	†2KΩ	†300KΩ	INF	0Ω	.1Ω	INF	1.6Meg	0Ω	0Ω
V 2	6U8	†4.6KΩ	200KΩ	†100KΩ	.1Ω	0Ω	†8.7KΩ	0Ω	0Ω	10KΩ
V 3	6CB6	1.4Meg	47Ω	6Ω	9Ω	†1.8KΩ	†1.8KΩ	0Ω		
V 4	6CB6	.7Ω	47Ω	9Ω	12Ω	†1KΩ	†16KΩ	0Ω		
V 5	6CB6	0Ω	180Ω	12Ω	15Ω	†1.6KΩ	†1.8KΩ	0Ω		
V 6	6AL5	0Ω	1.1Meg	12Ω	15Ω	100KΩ	0Ω	4.7KΩ		
V 7	6CB6	1Meg	200Ω	17Ω	15Ω	†7KΩ	†15KΩ	†15KΩ		
V 8	6AU6	220KΩ	0Ω	9Ω	12Ω	†1.8KΩ	†11KΩ	0Ω		
V 9	6AL5	0Ω	80KΩ	9Ω	6Ω	150KΩ	0Ω	80KΩ		
V 10	12AX7	†11KΩ	2.7Meg	0Ω	17Ω	17Ω	†220KΩ	1Meg	0Ω	15Ω
V 11	25L6GT	NC	17Ω	†1.8KΩ	†12KΩ	470KΩ	TP	25Ω	180Ω	
V 12	12SN7GT	1.2Meg	▲1Meg	0Ω	850KΩ	†8.5KΩ	330Ω	26Ω	21Ω	
V 13	6S4	NC	1.1KΩ	2.2Meg	3Ω	1.5Ω	2.2Meg	NC	NC	▲5.7KΩ
V 14	12SN7GT	1.4Meg	†6KΩ	400KΩ	480KΩ	†50KΩ	0Ω	21Ω	17Ω	
V 15	25BQ6GT	NC	25Ω	TP	†5.2KΩ	470KΩ	NC	32Ω	100Ω	Top Cap ▲18Ω
V 16	12AX4GT	TP	NC	140KΩ	NC	†80Ω	NC	6Ω	3Ω	
V 17	1B3GT		PINS	1 - 8	HAVE	INFINITE	RESISTANCE			Top Cap ▲465Ω
V 18	17LP4	0Ω	13Ω	Pin 6 0Ω	Pin 10 ▲470KΩ	Pin 11 †250KΩ	Pin 12 1.5Ω			

† MEASURED FROM OUTPUT OF M2.
▲ MEASURED FROM PIN 3 OF V16.
NC - NO CONNECTION
TP - TIE POINT

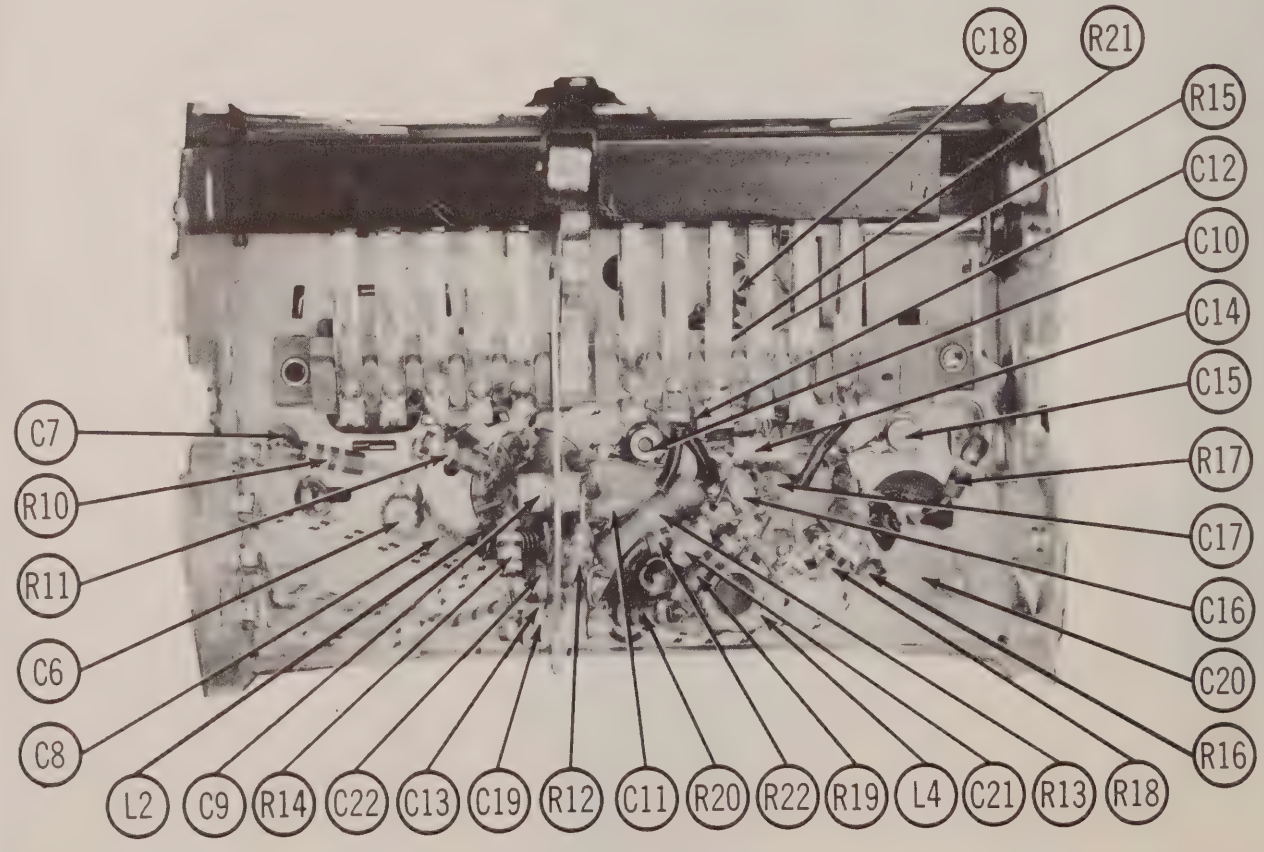




TUBE PLACEMENT CHART

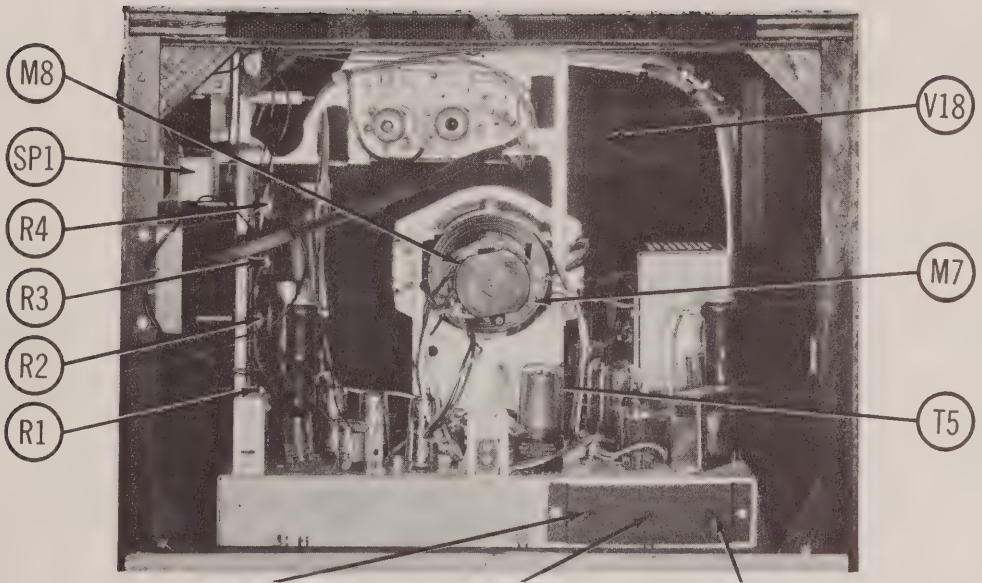


RF TUNER-TOP VIEW



RF TUNER-BOTTOM VIEW

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the picture stabilizer control (R7) fully clockwise.

Turn the set on and tune in a TV station, preferably a test pattern.

Alignment of the horizontal oscillator can be done without removing chassis.

1. Turn the horizontal hold control to the center of its range.
2. Connect short across B2. Leads are brought to terminal strip on top of chassis (near the center) for shorting out B2.
3. Adjust the horizontal frequency slug (B1) to the center of the range over which the picture synchronizes horizontally.
4. Remove short from B2.
5. Connect the vertical input lead of an oscilloscope to point (E) . Low side to chassis.
6. Adjust the horizontal phasing slug (B2) until the broad and narrow peaks are of equal amplitude as shown in Fig. 7.
7. Turn the horizontal hold control one quarter turn slowly clockwise and the picture should be in synchronization and remain in synchronization over the entire range of the horizontal hold control. Adjust the width control (B3) for a picture slightly wider than necessary to fill the picture mask horizontally.

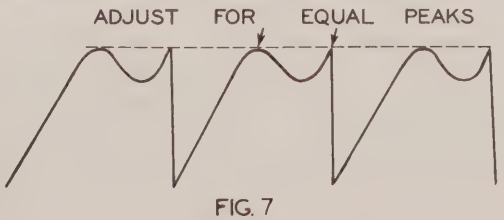


FIG. 7

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss of High Voltage".

INSUFFICIENT SWEEP

Check by substitution V15 and V16. Check M1 and M2. Check R100, R99A, R99B, R92, C77, T2, T4A and other associated components.

DRIVE LINES

Check by substitution V15 and V16. Check C77, C76, R92, T2 and other associated components.

COMPRESSED LEFT SIDE

Check by substitution V15 and V16. Check horizontal output and damper stages for component failure or change of value.

FOLDS

Follow procedure outlined under "Drive Lines".

PIE CRUST EFFECT

Check by substitution V14, V15 and V16. Check C72 and C73 for open. Check L19, L20, C75 and other associated components.

XMAS TREE EFFECT

Check by substitution V14, V15 and V16. Check T2 and T4 for internal arcing. Check L19, L20, C75, C76, C77, R79, R81, R86 and other associated components.

VERTICAL

LOSS OF SWEEP

Check by substitution V12 and V13. Check waveform W6.

If Satisfactory	If Unsatisfactory
Check T3, T4B, R76, R75, C3C and other associated components.	Check C63, C67, R71, R5 and other associated components.

INSUFFICIENT SWEEP

Check by substitution V12 and V13. Check vertical size and vertical linearity controls for proper operation. Check T3, R71 and other associated components.

COMPRESSED AT BOTTOM

Check by substitution V12 and V13. Check R5, R71, C67, C63 and other associated components.

COMPRESSED AT TOP

Check by substitution V12 and V13. Check R75, R6, C3D, T3 and other associated components.

FOLDS

Check by substitution V12 and V13. Check C65, C67, C66, R73, R72 and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Check by substitution V10 and V12. Check C58, C59, C60, R66, R63 and other associated components.

LOSS OF VERTICAL SYNC-HORIZONTAL SYNC SATISFACTORY

Substitute V12. Check vertical integrator network. Check C63, R70, R3 and other associated components.

LOSS OF HORIZONTAL SYNC-VERTICAL SYNC SATISFACTORY

Substitute V14. Check C68, C70, C75, L19, L20, R82 and other associated components.

HORIZONTAL BENDING

Check by substitution V10, V12 and V14. Check components associated with V14.

VIDEO

LOSS OF VIDEO

Check by substitution V5, V6 and V7. Check R35, R43, R45, C38, C44, C45, L11, L15 and other associated components.

SOUND BARS (4.5MC BEAT)

Adjust tuner fine tuning for best sound and picture. Check adjustment A12. Check video IF alignment.

POOR CONTRAST

Substitute V7. Check contrast control. Check video detector network. Check L13, L14, R44, C44, C45, C46 and other associated components.

NEGATIVE PICTURE

Substitute V7. Check picture tube. Check C2D, C44, C45, L14, R44 and other associated components.

SMEAR

Substitute V7. Check L11, L13, L14, C44, C45 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V1, V3, V4, V5, V6 and V7 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V8, V9, V10 and V11. Check stages V10 and V11 using audio signal generator. Apply audio signal across R1B.

If Satisfactory	If Unsatisfactory
Check audio detector and audio IF stages for component failure or change of value.	Check C54, C55, C56, C57, C2C, R59, R56, T6, speaker and other associated components.

BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustment A11. If still unsatisfactory, check audio IF alignment.

DISTORTED

Follow procedure outlined under "Weak or No Sound".

POWER

DEAD SET

If filaments fail to light, check by substitution all tubes. Check R99A and R99B. Check switch on volume control. Check AC interlock assembly. If tuner tubes don't light, check by substitution V1 and V2. Check T1. If filaments light, check M3 fuse. Check M1 and M2. Check R100 and C1. Check B+ filter and decoupling network.

SMALL AND/OR DIM PICTURE

Check R100, C1, M1 and M2. Check B+ filter and decoupling network.

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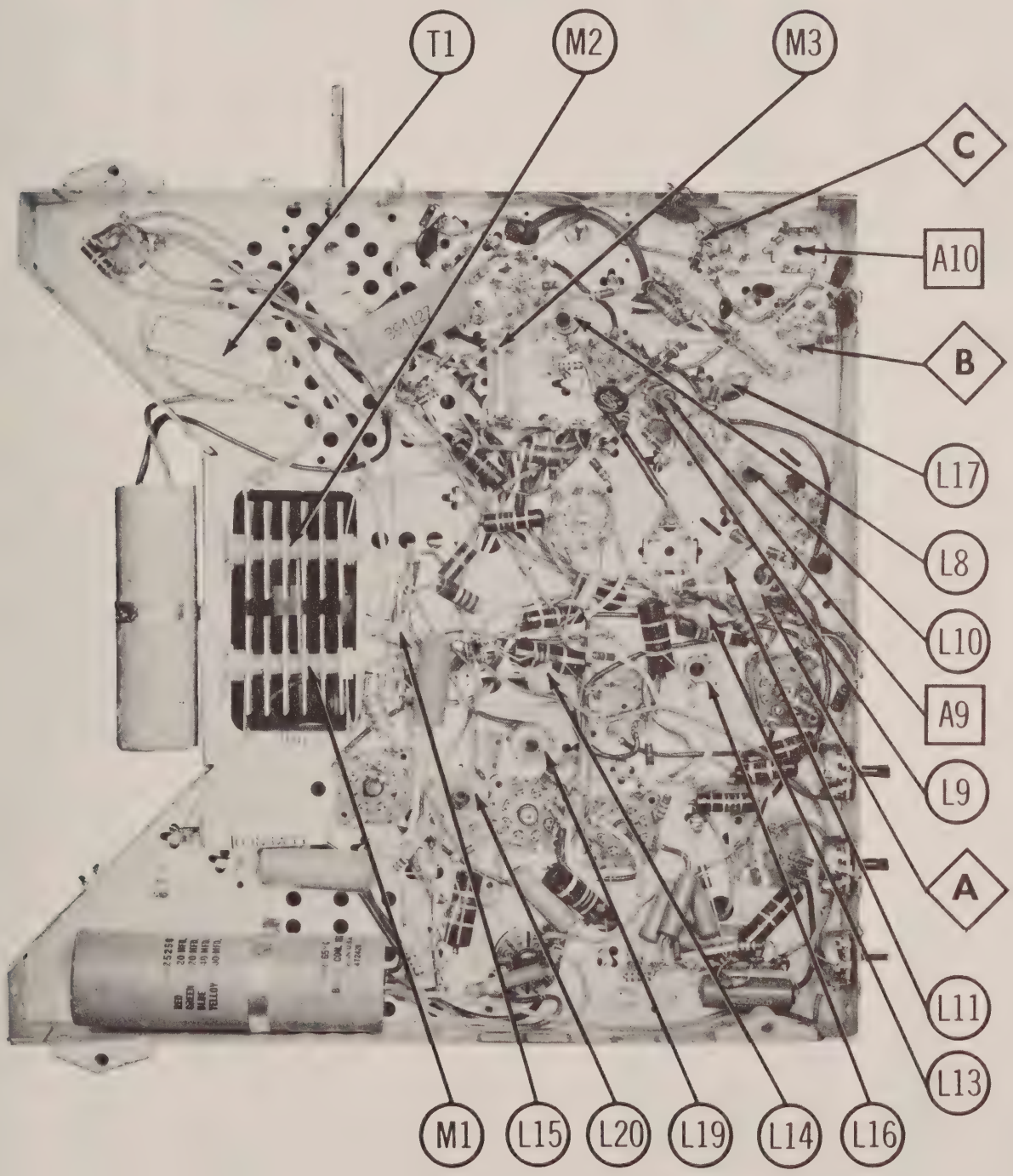

CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

SET 275 FOLDER 7

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	R F Amplifier	6BZ7	6BZ7	9AJ	6DQ7 used in 120220-D chassis
V2	Osc Mixer	6U8	6U8	9AR	6J8 used in 120220-D chassis
V3	1st. Video I F Amp.	6CB6	6CB6	7CM	
V4	2nd. Video I F Amp. 1st. Sound I F	6CB6	6CB6	7CM	
V5	3rd. Video I F Amp.	6CB6	6CB6	7CM	
V6	Video Det.- AGC Rectifier	6AL5	6AL5	6BT	
V7	Video Output	6CB6	6CB6	7CM	
V8	Sound I F Amp.	6AU6	6AU6	TBK	
V9	Discriminator	6AL5	6AL5	6BT	
V10	A F Amplifier- Sync Separator	12AX7	12AX7	9A	
V11	Audio Output	25L6GT	25L6GT	7S	
V12	Sync Phase Inv.- Vert. Mult.	12SN7GT	12SN7GT	8BD	
V13	Vert. Mult.- Vert. Output	6S4	6S4	9AC	
V14	Horiz. A.F.C.- Horiz. Osc.	12SN7GT	12SN7GT	8BD	
V15	Horiz. Output	25B06GT	25B06GT	6AM	
V16	Damper	12AX4GT	12AX4GT	4CG	
V17	HV Rectifier	1B3GT	1B3GT	3C	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: EMERSON PART No.	CBS-HYTRON PART No.	GENERAL ELECTRIC PART No	SYLVANIA PART No	WESTINGHOUSE PART No	RETMA BASE TYPE	NOTES
V18	17LP4	17LP4	17LP4/17VP4	17LP4/ 17VP4	17LP4	12L 12L 12L 12L	① Aluminized
	14HP4						

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No	PYRAMID PART No	SANGAMO PART No.	NOTES
C1	250	150	925256				TD-250-150	G-10	Note 1
C2A	120	300	925209				TM-4U7	T-120	
B	±40	300						D-120	
C	±40	300							
D	35	350							
C3A	150	300	925256				CDB-1005	Q-382	
B	40	250							
C	20	450							
D	100	50							
C4	1000	1500	928238	DD18-102	IR5KV-102	DC-3021		C-3210	
C5	1000	1500	928238	DD18-102	IR5KV-103	DC-3021		C-3210	
C6	3-9			829-3					
C7	1000			DD-153	801-0015	DC-5315			
C8	3			TCZ-3	NP0A-030	ZT-5533			
C9	300								
C10	.5-3			829-3	3115-01-0R5	CT565A			
C11	1.3			TCZ-1.5	NP0A-1R5	ZT-5515			
C12	47			DE-470	831-470	UC-5447			
C13	800								
C14	47								
C15	.5-3			829-3	3115-01-0R5	CT565A			
C16	10								
C17	5								
C18	.5-3			829-3	3115-01-0R5	CT565A			
C19	900								
C20	230			DE-231	831-231	UC-5323			
C21	1000			DD-102	801-001	DC-531			
C22	806								
C23	5000		928109	DD-502	811-005	DC-535			
C24	39		928083	TCN-39	NT50L-390				
C25	8.8		928084						
C26	1000		928077	DD-102	801-001	DC-531			
C27	.25	300	923325				IMP2-P25	1303023	
C28	470		928081	DD-471	831-471	UC-5347			
C29	1000		928077	DD-102	801-001	DC-531			
C30	150		928096	DE-151	831-151	UC-5315			
C31	470		928081	DD-471	831-471	UC-5347			
C32	1000		928077	DD-102	801-001	DC-531			
C33	5000		928109	DD-502	811-005	DC-525			
C34	68		928139	TCN-68	NT50L-680	NT-5468			
C35	470		928081	DD-471		UC-5347		K-1347	
C36	680		928078	DD-681		UC-5368		K-1368	
C37	1000		928077	DD-102	801-001	DC-531		K-1210	
C38	1000		928077	DD-102	801-001	DC-531		K-1310	
C39	1000		928077	DD-102	801-001	DC-531		K-1330	
C40	1000		928077	DD-102	801-001	DC-531		K-1310	
C41	1000		928077	DD-102	801-001	DC-531		K-1310	
C42	5		928017	TCN-5	NT50A-050	NT-5505			
C43	39		928082	TCN-39	NT50K-390				
C44	.047	400	922554	DF-503		PT4147	IMP4-S47	3304147	
C45	.047	400	922554	DF-503		PT4147	IMP4-S47	3304147	
C46	47			TCZ-47	NP0K-470	ZT-5447			
C47	.001	600	922713	DE-102	GP2L-102	PT621	IMP6-D1	330631	
C48	100		928096	DD-101	801-101	UC-531		K-1310	
C49	5000		928109	DD-502	811-005	DC-535		C-1250	
C50	5000		928109	DD-502	811-005	DC-535		C-1250	
C51	1000		928077	DD-102	801-001	DC-531		K-1210	
C52	1000		928077	DD-102	801-001	DC-531		K-1210	
C53	100	500	911182	D6-101	GP1K-101	MC235		K-1310	
C54	.01	400	922314	D6-103	GP2-333-103	PT411	IMP4-S1	330411	

PARTS LIST AND DESCRIPTIONS

CAPACITORS (cont)

ITEM No.	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: EMERSON. PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No	PYRAMID PART No	SANGAMO PART No	NOTES
C55	.0047	600	922553	D6-472	GP2-333-472	PT6347	IMP6-D47	3306347	
C56	.047	400	922554	DF-503		PT4147	IMP4-S47	3304147	
C57	.01	600	922714	D6-103	GP2-333-103	PT611	IMP6-S1	330611	Note 3
C58	.01	400	922514	D6-103	GP2-333-103	PT411	IMP4-S1	330411	
C59	120	500	911184	DE-231	GP2E-231	MC240		K-1322	
C60	.01	400	922514	D6-103	GP2-333-103	PT411	IMP4-S1	330411	
C61	.0033	400	922433	D6-332	GP2-333-332	PT6233	IMP6-D33	3306233	
C62	.0033	400	922433	D6-332	GP2-333-332	PT6233	IMP6-D33	3306233	
C63	.1	400	923415	DP-104		PT401	IMP4-P1	330401	
C64	.01	600	922714	D6-103	GP2-333-103	PT611	IMP6-S1	330611	
C65	.001	600	922713	D6-102	GP1L-102	PT621	IMP6-D1	330621	
C66	.0047	400	923453			MCB465		CM-1247	
C67	.1	400	923415	DP-104		PT401	IMP4P1	330401	
C68	82	500	911160	TCZ-82	NP0L-820			KH-1482	
C69	82	500	911160	TCZ-82	NP0L-820			KH-1482	
C70	.047	400	922554	DF-503		PT4147	IMP4-S47	3304147	
C71	.047	400	922554	DF-503		PT4147	IMP4-S47	3304147	
C72	.023	400	923324	DP-303	817-03	PT4123	IMP4-S23	3304123	
C73	.47	200	923355			PT4047	IMP2-P47	3302047	
C74	330	100	911177					KR-1333	
C75	.01	600	922614						
C76	820	500	911172					KR-1382	
C77	.001	400	923413	D6-102	GP2L-102	PT621	IMP6-D1	330621	
C78	.1	400	923515	DP-104		PT401	IMP4-P1	330401	
C79	.22	200	923235			PT4023	IMP3-P22	3302023	
C80	100	4000	928114	DD60-101				K-4310	Note 3
C81	.1	600	923715	DP-104		PT601	IMP6-P1	330601	
C82	50	3000	929247	DD30-500					
C83	1000	1500	928238	DD18-102	IR5KV-103	DC-3021		C-3210	
C84	.01	400	922301	D6-103	GP2-333-103	PT411	IMP4-S1	330411	

Note 1. Some versions use 120MFD in this application (part #928278).
Note 2. Some versions use .0047MFD in this application (part #923765).
Note 3. Used only with horizontal output transformer part #738091.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1500Ω	½	390301	*Q2-528	RTV-444	F1-7	UF152R	Contrast - Panel - Note 1
B	1Meg	½				R2-52	UR16A	Volume - Rear
C	Switch					S2-18	UR-18	Attach to R1B
R2A	50KΩ	½	390302	QH-133	A47-50K-S	B-51	U-35	Horiz. Hold - Note 2
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R2A
R3A	1Meg	½	390303	QH-137	A47-1Meg-S	B-59	U-54	Vert. Hold - Note 3
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A
R4A	500KΩ	½	390304	QH-139	A47-500K-S	B-48	Not Req.	Brightness - Note 4
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R4A
R5A	2Meg	½	390375	QH-139	A47-2Meg-S	BX-75	SU-58	Vert. Size
B	Shaft		Not Req.	Not Req.	FXS-1/4	Not Req.	Not Req.	Attach to R5A
R6A	3500Ω	½	390376	QH-114	A47-4000-S	AB-9	SU-14	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FXS-1/4	AX-1	Not Req.	Attach to R6A
R7A	100KΩ	½	390387	QH-128	A47-100K-S	BX-40	SU-41	Picture Stabilizer
B	Shaft		Not Req.	Not Req.	FXS-1/4	Not Req.	Not Req.	Attach to R7A

Note 1: Some versions may use an alternate control part no. 390372 in this application.
Note 2: Some versions may use an alternate control part no. 390377 in this application.
Note 3: Some versions may use an alternate control part no. 390374 in this application.
Note 4: Some versions may use an alternate control part no. 390373 in this application.
† Universal replacement (Mallory exact duplicate part no. UE-3008)
* CONCENTRIKIT EQUIVALENT: KIT K-3, BASE ELEMENTS & SHAFTS: R1T-109 & F1-121 (PANEL) R1S-137 & R9-208 (REAR) T6-1 SWITCH

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	NOTES
R8	15KΩ	½	360772	BTS-15K	
R9	100KΩ	1	360973	BTA-100K	
R10	47KΩ	½		BTS-47K	
R11	22KΩ	½		BTS-22K	
R12	620KΩ	½		BTS-620K	
R13	150Ω	1		BTA-150Ω	
R14	470KΩ	½		BTS-470K	
R15	180Ω	½		BTS-180Ω	
R16	100KΩ	½		BTS-100K	
R17	100KΩ	½		BTS-100K	
R18	100KΩ	½		BTS-100K	
R19	15KΩ	½		BTS-15K	
R20	820KΩ	½		BTS-820K	
R21	10KΩ	½		BTS-10K	
R22	3300Ω	½		BTS-3300	
R23	470KΩ	½	341122	BTS-470K	
R24	1000Ω	½	350492	BTS-1000	
R25	1Meg	½	350452	BTS-1Meg	
R26	15Ω	½	340052	BTS-15	
R27	47Ω	½	340172	BTS-47	
R28	470Ω	½	350412	BTS-470	
R29	27KΩ	½	340822	BTS-27K	
R30	47Ω	½	340172	BTS-47	
R31	15KΩ	½	340772	BTS-15K	
R32	470Ω	½	350412	BTS-470	
R33	15KΩ	½	340772	BTS-15K	
R34	180Ω	½	340312	BTS-180	
R35	470Ω	½	350412	BTS-470	
R36	100KΩ	½	350972	BTS-100K	
R37	1Meg	½	351212	BTS-1Meg	
R38	330KΩ	½	341032	BTS-330K	
R39	15KΩ	½	340772	BTS-15K	
R40	15KΩ	½	340772	BTS-15K	
R41	4700Ω	½	340852	BTS-4700	
R42	1Meg	½	351212	BTS-1Meg	
R43	15KΩ	½	340772	BTA-15K	
R44	47KΩ	½	340822	BTS-47K	
R45	6800Ω	2	780682	BTS-6800	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	NOTES
R46	220KΩ	½	351052	BTS-220K	
R47	15KΩ	½	350772	BTS-15K	
R48	220KΩ	½	350952	BTS-220K	
R49	22KΩ	1	370812	BTA-22K	
R50	470Ω	½	350412	BTS-470	
R51	10KΩ	½	340732	BTS-10K	
R52	100KΩ	½	340972	BTS-100K	
R53	100KΩ	½	340972	BTS-100K	
R54	56KΩ	½		BTS-56K	Note 1
R55	1Meg	½	351212	BTS-1Meg	
R56	220KΩ	½	350952	BTS-220K	
R57	470KΩ	½	351132	BTS-470K	
R58	180Ω	1	370812	BTA-180	
R59	18KΩ	1	370792	BTA-18K	
R60	27KΩ	1	370832	BTA-27K	
R61	470KΩ	½	350132	BTS-470K	
R62	2.2Meg	½	351292	BTS-2.2Meg	
R63	100Ω	½	340732	BTS-10K	
R64	1Meg	½	351212	BTS-1Meg	
R65	330Ω	1	340372	BTS-330	
R66	18KΩ	1	370772	BTA-18K	
R67	5600Ω	½	340672	BTS-5600	
R68	3300Ω	½	340612	BTS-3300	
R69	3300Ω	½	340612	BTS-3300	
R70	680KΩ	½	341172	BTS-680K	
R71	680KΩ	½	341172	BTS-680K	
R72	150KΩ	½	341012	BTS-150K	
R73	150KΩ	½	341012	BTS-150K	
R74	2.2Meg	½	351292	BTS-2.2Meg	
R75	470Ω	½	350412	BTS-470	
R76	470Ω	½	7906S2	BTS-470	
R77	560Ω	½	340632	BTS-560	
R78	560Ω	½	340632	BTS-560	
R79	680KΩ	½	341172	BTS-680K	
R80	330KΩ	½	341032	BTS-330K	
R81	82KΩ	½	340952	BTS-82K	
R82	180KΩ	½	341032	BTS-180K	
R83	390Ω	½	340632	BTS-390	

RESISTORS (cont)

ITEM No	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: EMERSON PART No	IRC PART No	NOTES
R84	150KΩ	½	341012	BTS-150K	
R85	330KΩ	½	340932	BTS-330K	
R86	820Ω	½	340712	BTS-820	
R87	47KΩ	½	340832	BTS-47K	
R88	150KΩ	½	341012	BTS-150K	
R89	470KΩ	½	341132	BTS-470K	
R90	68Ω	1	350212	BTS-68	
R91	100Ω	1	790252	BTS-100	
R92	4700Ω	2	780652	BTS-4700	
R93	10KΩ	½	340732	BTS-10K	
R94	33Ω	½	340132	BTS-33	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	NOTES
R95	470KΩ	½	351132	BTS-470K	
R96	1.5Ω	1	340142	BTS-470	
R97	470Ω	2	780412		
R98A	1500Ω	5			
B	80Ω	10	397084		
C	1250Ω	10			
R99A	1400	15	397083		
B	58Ω	10			
R100	5Ω	10	394127		
R101	100KΩ	1	380972	BTA-100K	

Note 1: Not used in some versions.

TRANSFORMER (FILAMENT)

ITEM No	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	REPLACEMENT DATA: EMERSON PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	RCA TYPE No	Halldorson PART No.	Thordarson PART No.
T1	117VAC & 05A Tap a. 5.3VAC			730051	P-8126①	P-3074②	F-14X③		F5U①	ET08①

① Tape 5.3VCT.
② Not auto type. Separate 6.3V winding.
③ Drill one new mounting hole.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No	Rom PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Horiz. Output Trans.	738099							
T3	Vert. Output Trans.	738091 ① 738081 ② 738080 ③	Z1803	A-3036		V30S	A-8U2	26851	A-90X ①
T4A	Yoke-Horiz. (34MH)	708178	DF605 ③	MDF-73④		Y70F25 ④	DY-11A ④	Y-10④	Y-19-1④
B	Vert. (17MH)								
T5	Width (1-2MH)	708068		MWC-6④	21R1	20UR15	WC-8	WC-18④	WC-12④

① Alternate horiz. output trans.
② Alternate vert. output trans.
③ Drill new mounting hole(s).
④ Connect as in original circuit.
⑤ Enlarge mounting hole.
⑥ Connect to coded blue and green terminals.

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE: PRI.	IMPEDANCE: SEC	REPLACEMENT DATA: EMERSON PART No	Stancor PART No	Merit PART No	Triad PART No	Halldorson PART No	Thordarson PART No	NOTES
T6	4.2KΩ	3.2Ω	734085	A-3877①	A-3026	S-33X①	Z1000 ①	24S51 ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS: SIZE	FIELD	V C. IMP.	REPLACEMENT DATA: EMERSON PART No	JENSEN PART No	QUAM PART No	NOTES
SP1	4"	PM	3.2Ω	180111	ST-113 Mod. P4-X	4A07	

COILS (RF-IF)

ITEM No.	USE	DC RES: PRI.	DC RES: SEC.	REPLACEMENT DATA: EMERSON PART No.	MEISSNER PART No	MERIT PART No	MILLER PART No	NOTES
L1	Ant. Coils	0Ω	0Ω					
L2	Mext. Coil	0Ω						
L3	R.F. Mixer Grid & Osc. Coils	0Ω						
L4	Conv. Plate	.1Ω	0Ω					
L5	Adj. Channel Sound Trap	0Ω		730154	20-1047*		6219*	
L6	Sound Carrier Trap	0Ω		730149	20-1046		6219*	
L7	1st Video I F	.1Ω		730801	17-5004	TV-125	6235*	
L8	2nd Video I F	0Ω	0Ω	730198	17-4524	TV-126	6219	
L8A	3rd Video I F	0Ω	0Ω	730199				
B	2nd Sound I F	1.5Ω		730199				
L10	4th Video I F	0Ω	0Ω	730198	17-4532		6219	
L11	Series Peaking Coil	2.6Ω		705014	19-6022	TV-180	6153	20 Microhenries
L12	1st Sound I F	10.5Ω	.7Ω	720178	16-5445	TV-113	6203	
L13	Shunt Peaking Coil	15Ω		708114	19-1923	TV-188	4566	440 Microhenries
L14	Series Peaking Coil	7Ω		708100	19-5250	TV-185	6181	250 Microhenries
L15	Shunt Peaking Coil	18Ω		708115	19-3660		4650	660 Microhenries
L16	4.5MC Trap	1.9Ω		708164	20-1004	TV-151	1469	
L17	RF Choke	.7Ω		708200	19-1003		4508	4.6 Microhenries
L18	Discriminator	5.9Ω	4Ω	708210	17-1033a	TV-114	6204	
L19	Horiz. Osc.	115Ω		716083	20-1402*	TV-182*	6183*	Tapped at 82Ω
L20	Horiz. Phase Coil	27Ω		708180	20-1403*	TV-182*	6183*	

* Disconnect 33MMF cap.
⊕ Use one winding only.
▲ Enlarge chassis hole and drill mounting holes.
* Horiz. oscillator & horiz. phase coil replaced with one unit. Drill mounting holes.

EMERSON MODELS 10300D, 10302D (Ch. 120220-D), 1058D, 1060D, 1062D, 1064D (Ch. 120239-D)

PARTS LIST AND DESCRIPTIONS (Continued)

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	EMERSON PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.280A	817019	1090A	RS300	6S300	6Q4	300	
M2	.280A	817019	1090A	RS300	6S300	6Q4	300	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			EMERSON PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M3	3AG S/B	1 2/10A 125V	808006		31301.2 (3AG-1 2/10A S/B)	357001	MDL 1 1/4	4405

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M4A	Tuner	470755*	VHF - Chassis 120239-D & on some 120220-D
B	Tuner	470771†	VHF - Chassis 120220-D
M5	Trap		VHF Ant. Input Filter
M6	Switch	510102	Automatic On-Off (Actuated By Lid Support) Chassis 120220-D only.
M7	Centering Device	708149	Alternate part no. 708134
M8	Ion Trap	708129	
	Cabinet	140593	Model 1030D
	Cabinet	140593A	Model 1032D
	Cabinet	140617D	Model 1058D
	Cabinet	140617	Model 1060D
	Cabinet	140617A	Model 1062D
	Cabinet	140617C	Model 1064D
	Knob	450101	Channel Sel. - Models 1030D, 1032D
	Knob	450206	Channel Sel. - Models 1058D, 1060D, 1062D, 1064D
	Knob	450103	Fine Tuning - Models 1030D, 1032D
	Knob	450209	Fine Tuning - Models 1058D, 1060D, 1062D, 1064D
	Knob	460162A	Brightness, Vert. Hold, Horiz. Hold - Models 1030D, 1032D
	Knob	450212	Brightness, Vert. Hold, Horiz. Hold - Models 1058D, 1060D, 1062D, 1064D
	Knob	450102	On-Off-Volume - Models 1030D, 1032D
	Knob	450207	On-Off-Volume - Models 1058D, 1060D, 1062D, 1064D
	Knob	450104	Contrast - Models 1030D, 1032D
	Knob	450208	Contrast - Models 1058D, 1060D, 1062D, 1064D
	Safety Glass	520204	Models - 1030D, 1032D
	Safety Glass	520208	Models - 1058D, 1060D, 1062D, 1064D
	Mask	460562A	Models - 1030D, 1032D
	Mask	575990	Models 1058D, 1060D, 1062D, 1064D

* Chassis 120239-D may use alternate tuner part no. 470776.
† Chassis 120220-D may use alternate tuner part no. 470773

TROUBLE SHOOTING AIDS (cont)

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V14, V15, V16 and V17. Check waveform W11.

If Satisfactory	If Unsatisfactory
Check C81, C78, C79, R92, T2, T4A and other associated components.	Check L19, L20, C76, C75, C77, R87, R85, R86 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V15 and V16. Check M1 and M2. Check T2, R100, R92, C77, C1, C79 and other associated components.

BLOOMING

Check by substitution V15, V16 and V17. Check M1 and M2. Check R100, R92, C77, C1, C79 and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss of Video".

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak or No Sound".

RASTER, NO SOUND, NO PICTURE

Check by substitution V1, V2, V3, V4, V5, V6 and V7. Check video IF components for change of value or failure.

NO RASTER, NO SOUND

Follow procedure outlined under "Dead Set".

KEYSTONE EFFECT

Check T4 and its associated components.

INTERMITTENT STREAKS

Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.

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SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removal of the channel selector and fine tuning knobs. The adjustments are accessible, one at a time, thru the small hole in the cabinet to the left of the channel selector shaft.

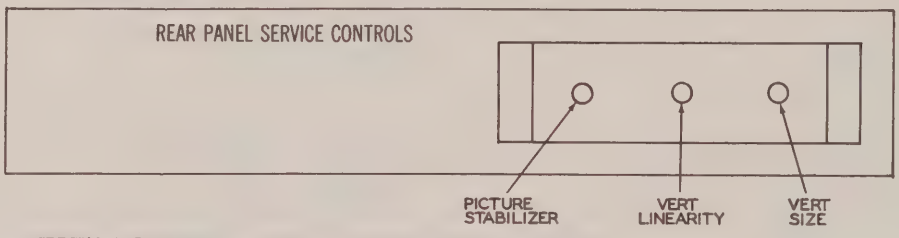
PICTURE TUBE SAFETY GLASS CLEANING

To clean safety glass remove 4 wood screws holding plastic strip at top of safety glass. Remove plastic strip and safety glass. Use extreme caution when removing safety glass.

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION



SPECIAL ADJUSTMENTS - PICTURE STABILIZER CONTROL ADJUSTMENT

In normal signal areas the picture stabilizer control (R7) should be set at its maximum clockwise position. In noisy fringe areas rotate R7 counter clockwise for best sync stability.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Adjustment is located on top of chassis. Set the horizontal hold control at the center of its range and adjust the horizontal frequency slug (L19) until picture synchronizes horizontally. (For location see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the discriminator secondary (L18) located on top of chassis. (See tube placement chart).

FUSES

One fuse is used for LV power supply protection. (For location see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

DISASSEMBLY INSTRUCTIONS

1. Remove 7 push-on type control knobs from side of cabinet.
2. Remove 6 metal screws. Remove rear cover.
3. Loosen 2 antenna bracket screws. Remove bracket.
4. Disconnect 2 speaker leads.
5. Remove 1 metal screw from tuner bracket. (Upper left, inside cabinet).
6. Remove 4 chassis mounting board bolts.
7. Remove 6 wood screws from mounting board.
8. Slide cabinet shell forward and lift off.
9. Remove 2 speaker nuts. Remove speaker.

REMOVAL OF CHASSIS FROM MOUNTING BOARD

1. Remove picture tube.
2. Remove 4 chassis mounting bolts.

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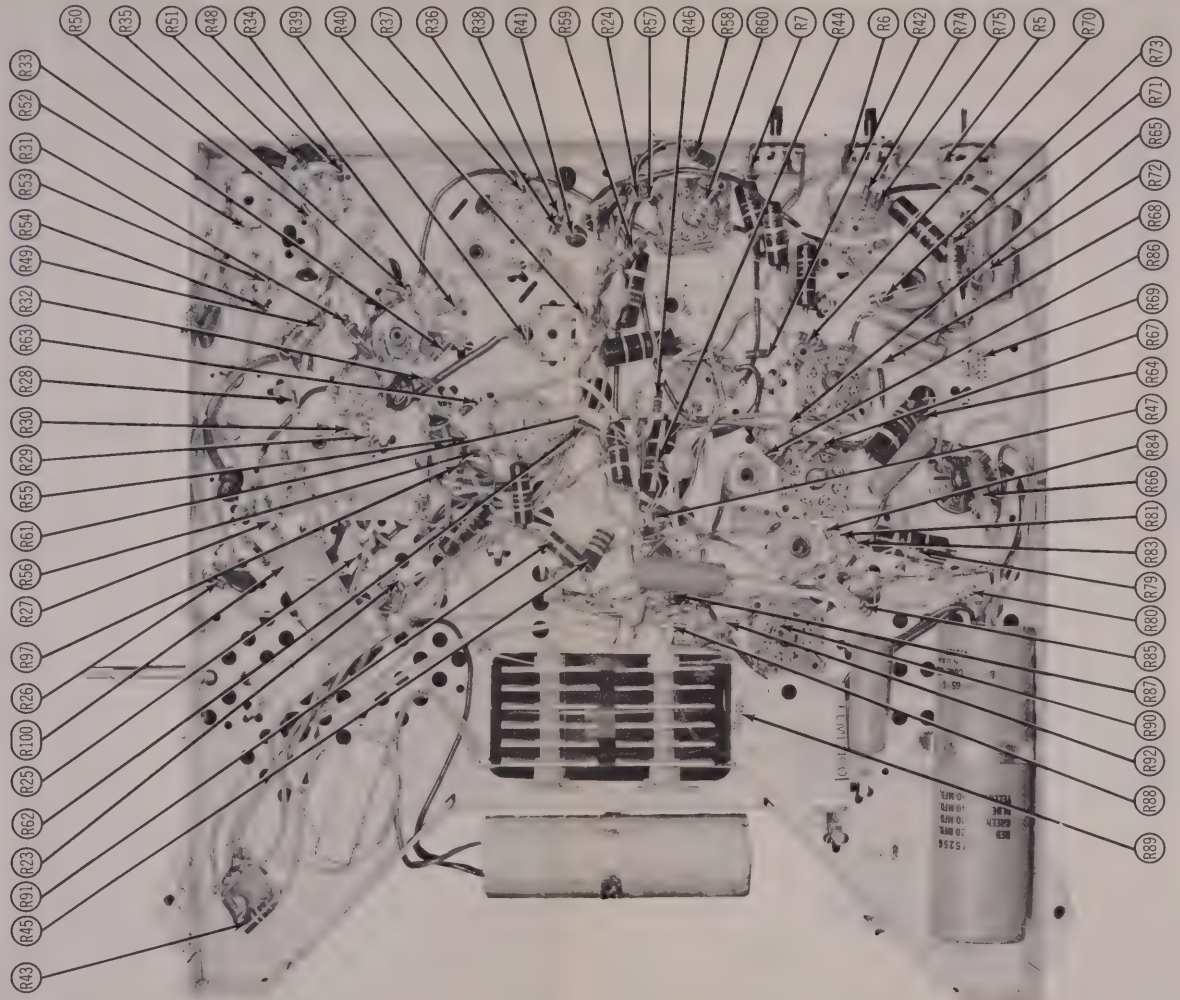

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PHOTOFACT* Folder

GENERAL ELECTRIC MODELS 21C347, 21C348, 21C349, 21C350, 21C351, 21T30, 21T31 ("J" Line)

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MODEL 21T30

GENERAL ELECTRIC MODELS 21C347, 21C348, 21C349, 21C350, 21C351, 21T30, 21T31 ("J" Line)

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DATE 4–55 SET 275 FOLDER 8

PHOTOFACT* Folder
*TRADE MARK

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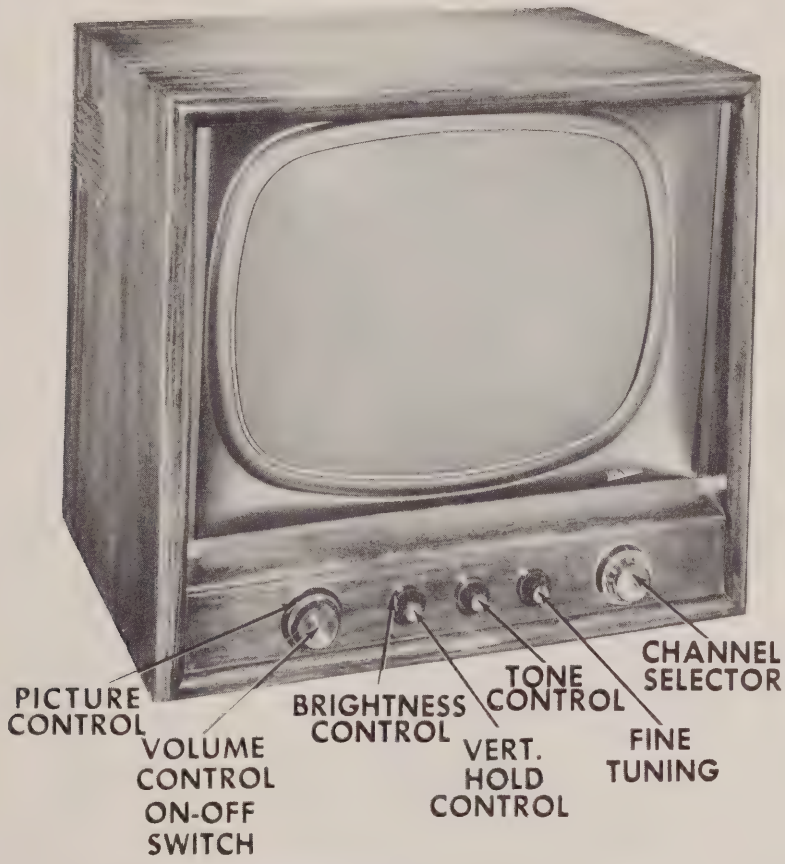

GENERAL ELECTRIC MODEL 21T30

TRADE NAME	General Electric Models 21C347, 21C348, 21C349, 21C350, 21C351, 21T30, 21T31 ("J" Line)
MANUFACTURER	General Electric Co., Electronics Dept., Electronics Park, Syracuse, N. Y.
TYPE SET	Television Receiver
TUBES	Twenty-two
POWER SUPPLY	110-120 Volts AC - 60 Cycle RATING 2.06 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

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GENERAL ELECTRIC MODELS 21C347, 21C348, 21C349, 21C350, 21C351, 21T30, 21T31 ("J" Line)

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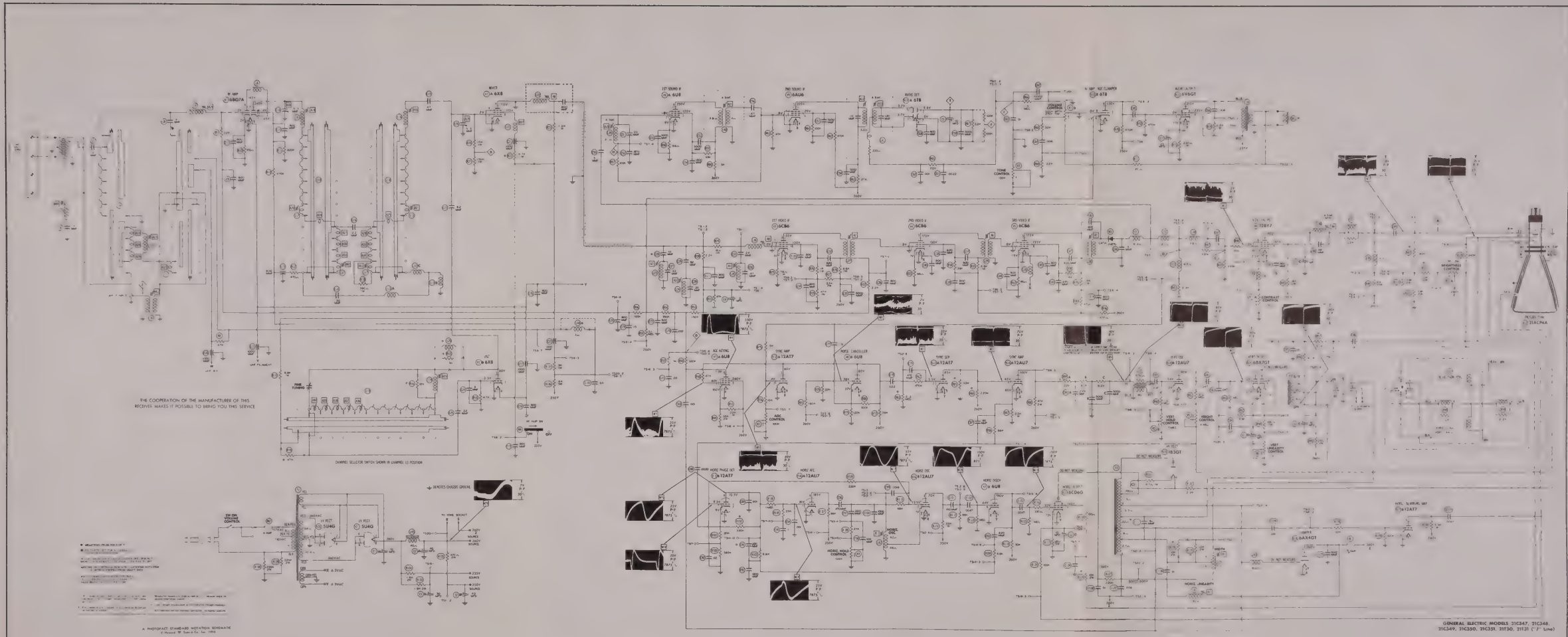
THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
DENOTES CHASSIS GROUND
A PHOTOFACT STANDARD NOTATION SCHEMATIC
GENERAL ELECTRIC MODELS 21C347, 21C348,
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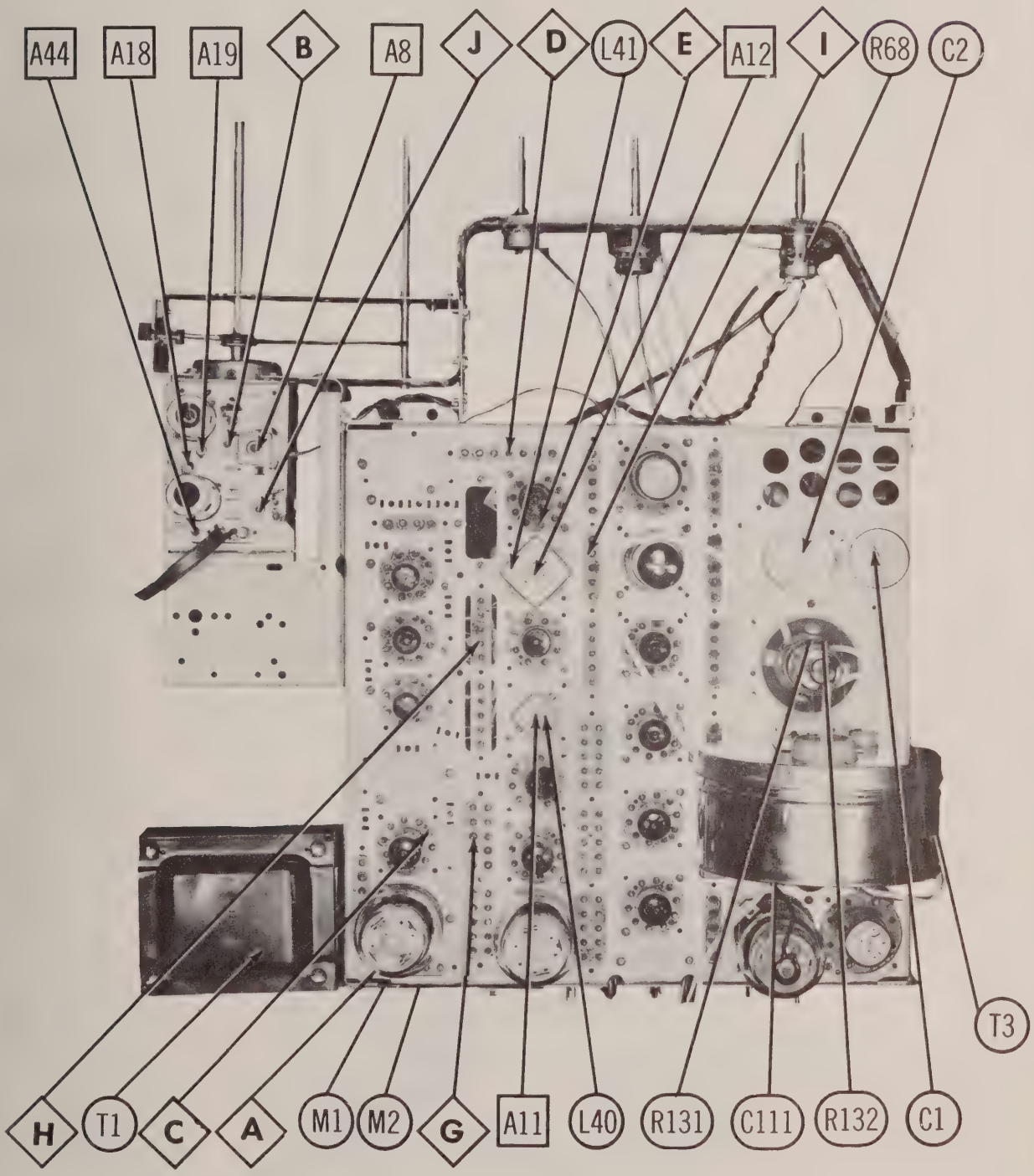

CHASSIS TOP VIEW

SET 275 FOLDER 8

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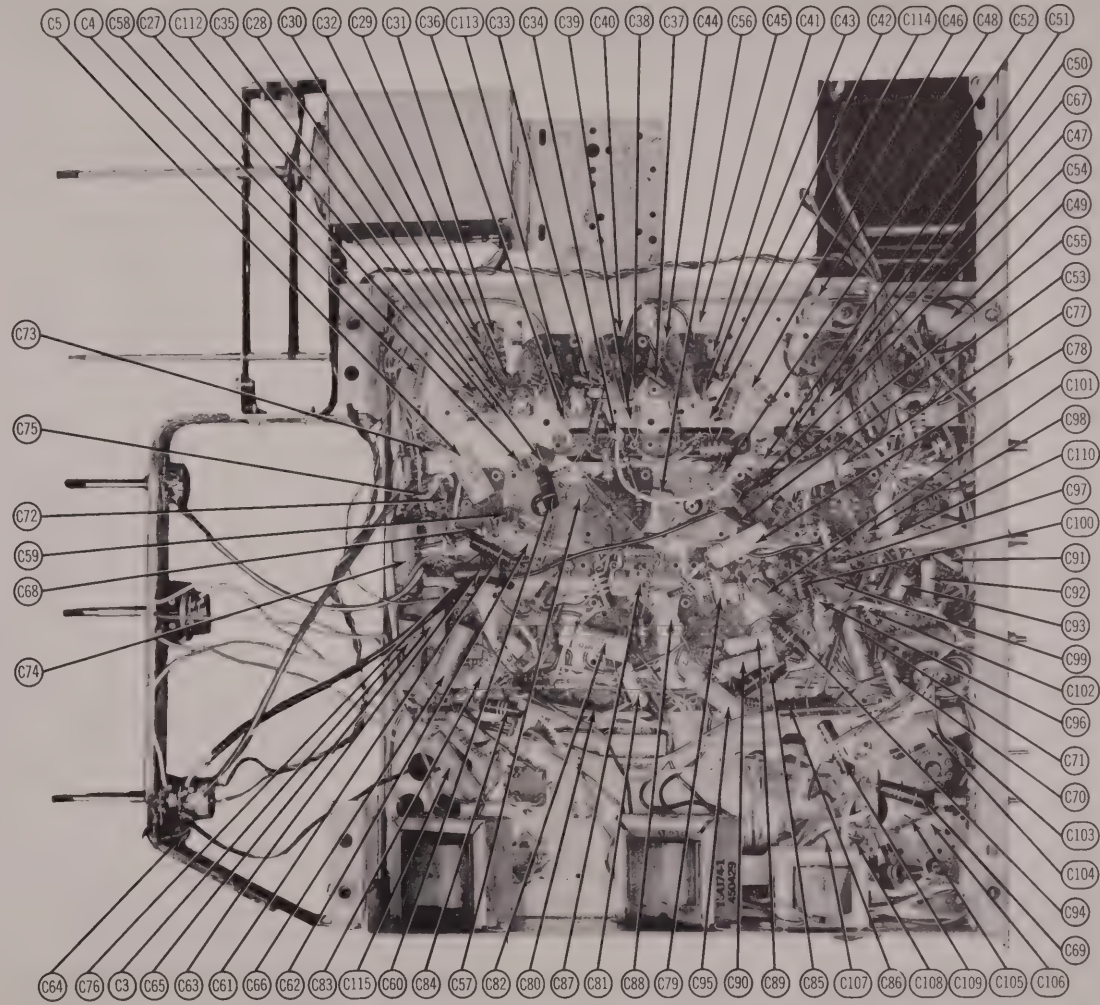

CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

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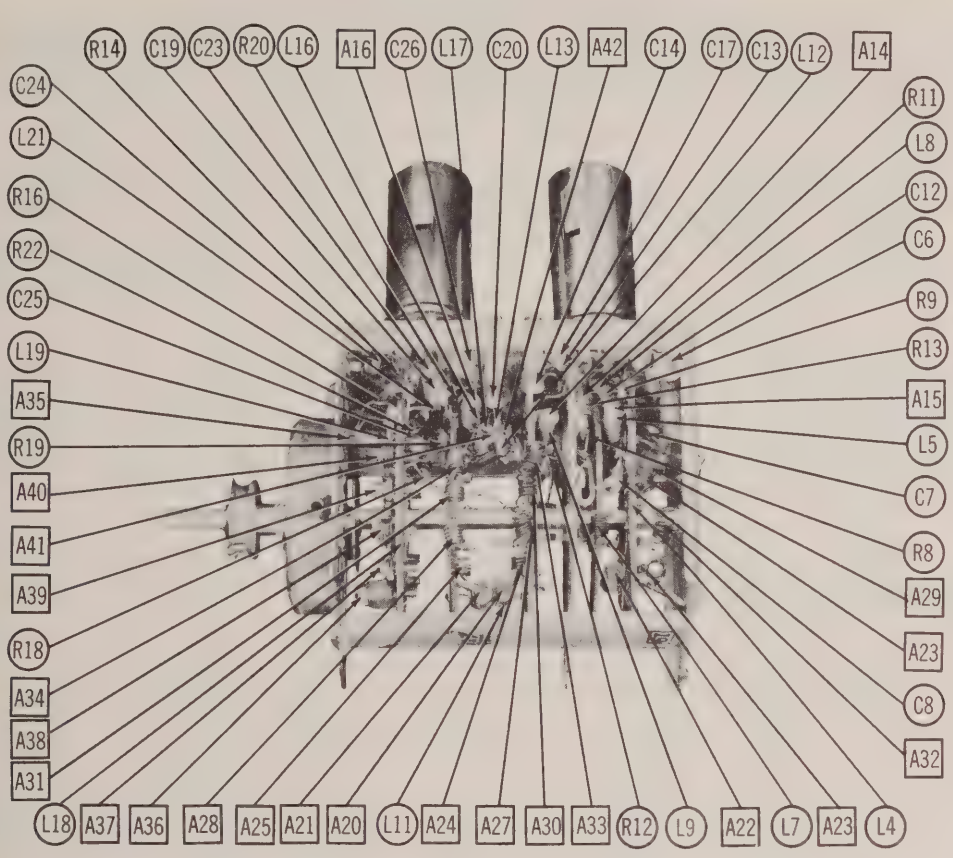
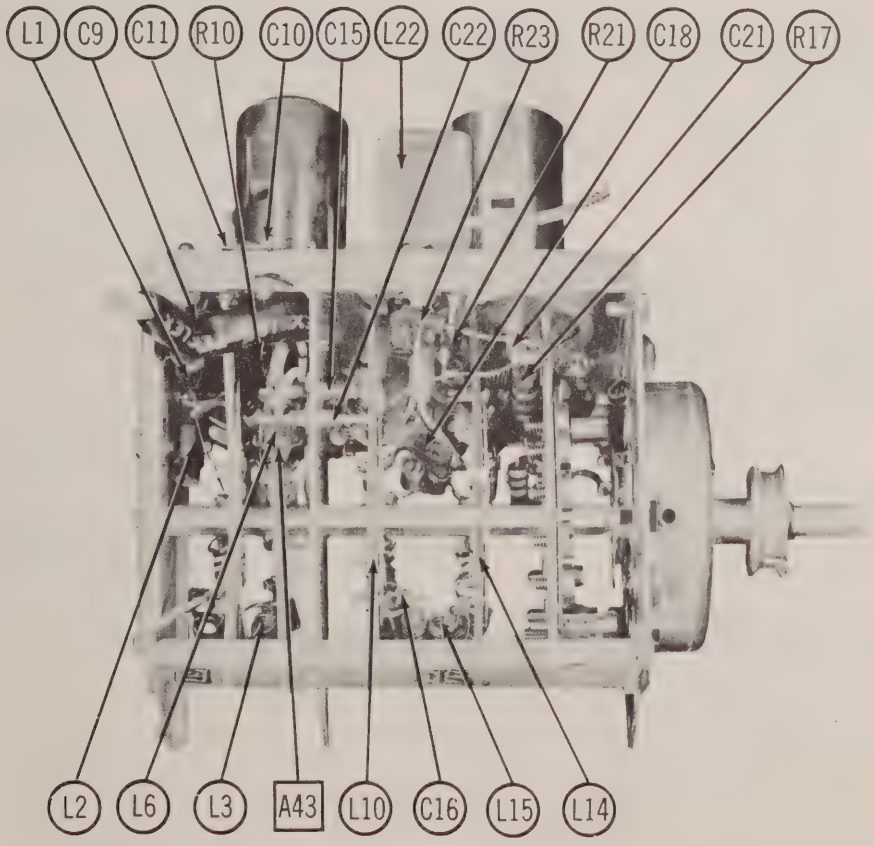


RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing cap from the plate of the horizontal output tube (V17). Connect temporarily a 2500Ω 25 watt resistor across B+ to chassis. Allow a 20 minute warm-up period for receiver and test equipment.

TRAP ALIGNMENT

Turn the following controls fully counter clockwise.
A. Volume control.
B. AGC control.
C. Brightness control.
Turn the picture contrast control fully clockwise.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to point (B). Low side to chassis.	Not used	47.25MC (400∿Mod)	11	Vert. Amp. to point (A). Low side to chassis.	A1	Remove V13 from its socket. Adjust for MINIMUM 400∿ indication on scope. If necessary, set scope gain to maximum.
2.	"	"	"	41.25MC	"	"	A2	"
3.	"	"	"	39.25MC	"	"	A3	"
4.	"	High side to point (C). Low side to chassis.	"	4.5MC (400∿Mod)	"	Vert. Amp. thru detector (Fig. 1) to point (A). Low side to chassis.	A4	Remove V5 from its socket. Adjust for MINIMUM 400∿ indication on scope. Replace V5 and V13 in their sockets.

VIDEO IF ALIGNMENT

Turn the contrast control fully counter clockwise. Connect the negative lead of a 4.5 volt battery to point (D). Connect positive lead to chassis. Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. Calibrate scope so that 1.75 volts peak to peak produces two inch vertical deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	.001MFD	High side to point (B). Low side to chassis.	44MC (10MC Swp)	44.15MC	Any	High side thru 10KΩ to point (C). Low side to chassis.	A5	Adjust for maximum response on scope.
6.	"	"	"	42.5MC	"	"	A6	Adjust for response as in Fig. 2 at 50% marker point.
7.	"	"	"	45.75MC	"	"	A7	Adjust for response as in Fig. 2 at 40% marker point.
8.	"	"	"	45.75MC 42.5MC	"	"	A8, A9	Adjust to shape peak region of curve (Fig. 2). A6 and A7 affect positions of 42.5MC and 45.75MC markers.
9.	"	"	"	39.25MC 41.25MC 42.5MC 45.0MC 45.75MC 47.25MC	"	"		Make final adjustments for response similar to Fig. 2. If necessary, retouch slightly A5 thru A9 for desired response. Do not readjust traps.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from point (E) to chassis. The junction of these two resistors is alignment point (F) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	Direct	High side to point (G). Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point (H). Common to chassis.	A10, A11	Adjust for maximum deflection on VTVM. Remove V5 from socket.
11.	"	"	"	"	DC probe to point (E). Common to chassis.	A12	Adjust for maximum deflection. Retouch A10 and A11 for maximum deflection.
12.	"	"	"	"	DC probe to point (I). Common to point (F).	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Replace V5 in its socket. Tune in a clear station. Check for audio buzz. If present, readjust A13 SLIGHTLY for minimum buzz and clearest sound.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Direct	High side to point (G). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. Amp. to point (H). Low side to chassis.	A10, A11	Remove V5 from its socket. Adjust for curve of maximum amplitude and symmetry similar to Fig. 3.
11.	"	"	"	4.5MC	"	Vert. Amp. to point (E). Low side to chassis.	A12	Disconnect stabilizing C5. Adjust A10, A11, A12 for curve of maximum amplitude and symmetry similar to Fig. 3.
12.	"	"	"	"	"	Vert. Amp. to point (I). Low side to chassis.	A13	Reconnect stabilizing capacitor C5. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 4. SLIGHTLY retouch A12 for maximum amplitude and symmetry of crossover lines. Replace V5 in its socket.

SOUND IF ALIGNMENT USING TV SIGNAL AND VTVM

Follow steps 10, 11 and 12 using station audio inside of 4.5MC generator frequency. Connect VTVM in the same procedure.

ALIGNMENT INSTRUCTIONS (cont)

RF AND MIXER ALIGNMENT

Connect the negative lead of a 3 volt battery to point Ⓓ. Positive side to tuner chassis.
Remove the 300Ω transmission line from the input to antenna coil (L1).
Remove B+ from the oscillator.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Fig. 5	Thru dummy antenna (Fig. 5) across primary of L1.	213MC (10-15MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 10KΩ to point Ⓑ. Low side to chassis.	A14, A15, A16	Adjust for response similar to Fig. 6. If peaks or the tilt is excessive knife A17 SLIGHTLY so as not to prevent loss of gain.
14.	"	"	177MC (10-15MC Swp)	175.25MC 179.75MC	7	"	A18, A19	Adjust for response curve similar to Fig. 6. Adjust spacing of A20 and A21 for proper coupling. Do not allow coils to touch each other.
15.	"	"	207MC (10-15MC Swp)	205.25MC 209.75MC	12			Adjust for response similar to Fig. 6. Check channels 7 thru 13 for proper tracking. If necessary retouch A19 for best compromise. Two settings of A18 are possible. To determine the correct settings switch to channel 12 and note change in band width. The correct setting will be indicated when the bandwidth on channel 2 is SLIGHTLY higher than bandwidth on channel 13.
			201MC (10-15MC Swp)	199.25MC 203.75MC	11			
			195MC (10-15MC Swp)	193.25MC 197.75MC	10			
			189MC (10-15MC Swp)	187.25MC 191.75MC	9			
			183MC (10-15MC Swp)	181.25MC 185.75MC	8			
16.	"	"	85MC (10-15MC Swp)	83.25MC 87.75MC	6	"	A22	Adjust for maximum gain on response curve and flatness of curve. (Fig. 7). If necessary SLIGHTLY retouch A20 and A21.
17.	"	"	79MC (10-15MC Swp)	77.25MC 81.75MC	5	"	A23, A24, A25	Check tracking on channel 5. If necessary knife A23, A24 and A25. Must not be over 15% off.
18.	"	"	69MC (10-15MC Swp)	67.25MC 71.75MC	4	"	A26, A27, A28	Check tracking on channel 4. If necessary knife A26, A27 and A28. (Must not be over 15% off).
19.	"	"	63MC (10-15MC Swp)	61.25MC 65.75MC	3	"	A29, A30, A31	Check tracking on channel 3. If necessary knife A29, A30 and A31. (Must not be over 15% off).
20.	"	"	57MC (10-15MC Swp)	55.25MC 59.75MC	2	"	A32, A33, A34	Check tracking on channel 2. If necessary knife A32, A33 and A34. (Must not be over 15% off).

OSCILLATOR ALIGNMENT

Connect bias as under RF and Mixer Alignment.
Remove the 300Ω transmission line from the input to antenna coil (L1).
Set the fine tuning knob ½ turn from counter clockwise position.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
21.	Fig. 5	Thru dummy (Fig. 5) across primary of antenna input coil (L1).	213MC (10-15MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 10KΩ to point Ⓒ. Low side to chassis.	A35	Adjust so that video marker falls at 50% on response curve as in Fig. 8. Sound markers should fall in trap notch.
22.	"	"	207MC (10-15MC Swp)	205.25MC 209.75MC	12	"		Check video and sound markers on response curve (Fig. 8) from 13 thru 7. If a slight difference is noticed SLIGHTLY readjust A35 to make compromise.
			201MC (10-15MC Swp)	199.25MC 203.75MC	11			
			195MC (10-15MC Swp)	193.25MC 197.75MC	10			
			189MC (10-15MC Swp)	187.25MC 191.75MC	9			
			183MC (10-15MC Swp)	181.25MC 185.75MC	8			
			177MC (10-15MC Swp)	175.25MC 179.75MC	7			
23.	"	"	85MC (10-15MC Swp)	83.25MC 87.75MC	6	"	A36	Adjust for response curve (Fig. 8). Video markers should be at 50%. Sound markers in trap notch.
24.	"	"	79MC (10-15MC Swp)	77.25MC 87.75MC	5	"	A37	"
25.	"	"	69MC (10-15MC Swp)	67.25MC 71.75MC	4	"	A38	"
26.	"	"	63MC (10-15MC Swp)	61.25MC 65.75MC	3	"	A39	"
27.	"	"	57MC (10-15MC Swp)	55.25MC 59.75MC	2	"	A40	"

ALIGNMENT INSTRUCTIONS (cont)

40MC CHANNEL ALIGNMENT

Connect bias as under "RF and Mixer Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Set tuner knob to UHF position. Remove IF output link from converter plate coil. Remove L22 shield can.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
28.	Fig. 9	High side thru(Fig. 9) network to point (J). Low side to tuner chassis.	620MC (20MC Swp)	40.5MC 45.75MC	Any	Vert. Amp. thru 10KΩ to point (B). Low side to chassis.	A41, A42, A43	Adjust for response curve similar to Fig.10. Adjust A41 and A42 for maximum amplitude. Adjust A43 for maximum gain and zero tilt. Do not allow coils to touch. Disregard possibility of notch caused by the IF trap (L2).

IF INTERFERENCE TRAP ALIGNMENT

A44 is aligned at the factory for approximately 43.5MC. A44 may be readjusted in the field to eliminate any interference between the 40-45MC range. When adjusting this trap core, care should be exercised so that normal channel 2 response is not affected. Adjust A44 for minimum IF channel interference pattern on the screen.

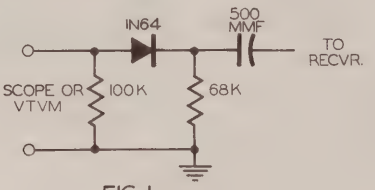


FIG. 1

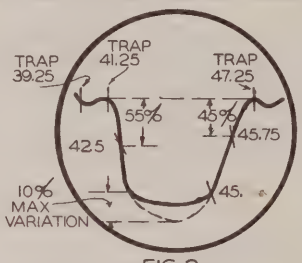


FIG. 2

FIG. 3

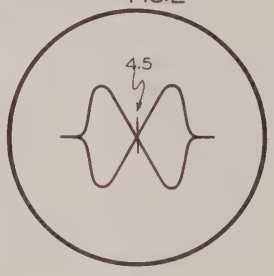
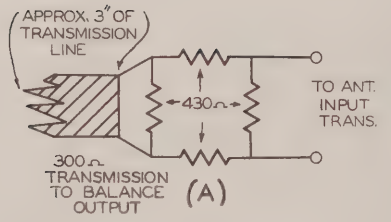
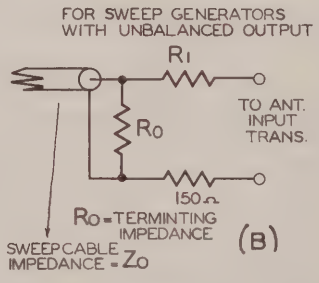


FIG. 4





ZO	RO	R1
50Ω	56Ω	120Ω
72Ω	82Ω	110Ω
92Ω	110Ω	100Ω

FIG. 5

FIG. 6

FIG. 7

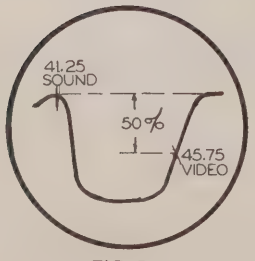


FIG. 8

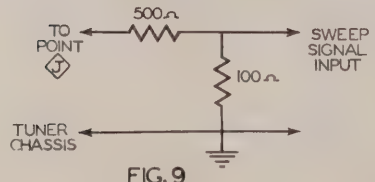
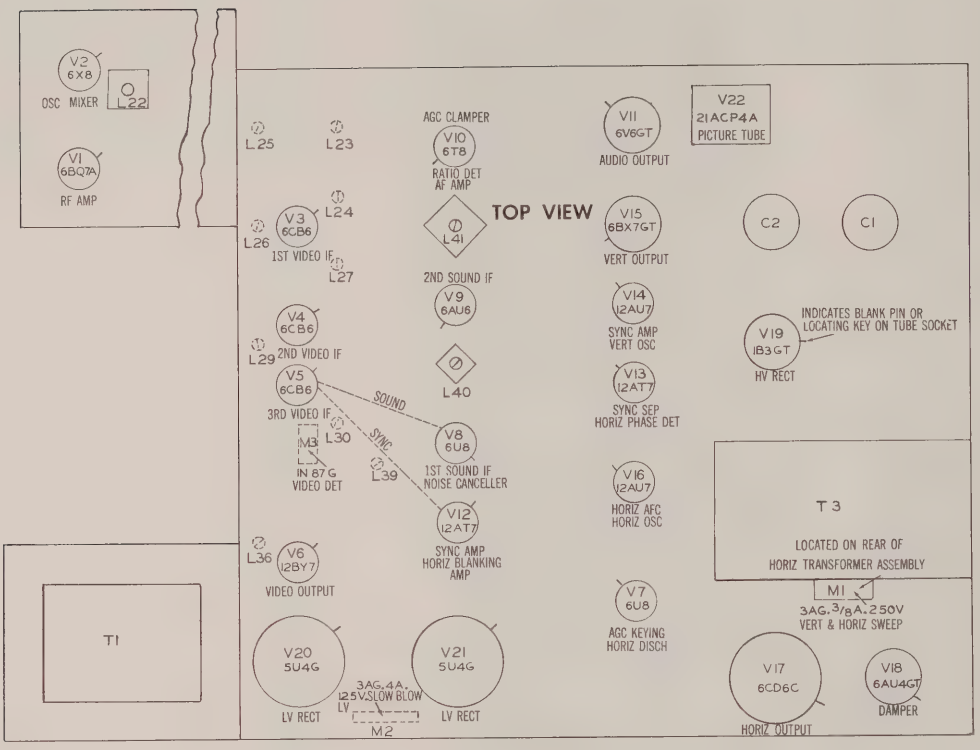


FIG. 9

FIG. 10

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **V20, V21, Fuse (M2)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V2, V3, V4, V5**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V7, V22**
Has pic, no sound - **V8, V9, V10, V11**
Overloaded picture - **V7, V10**

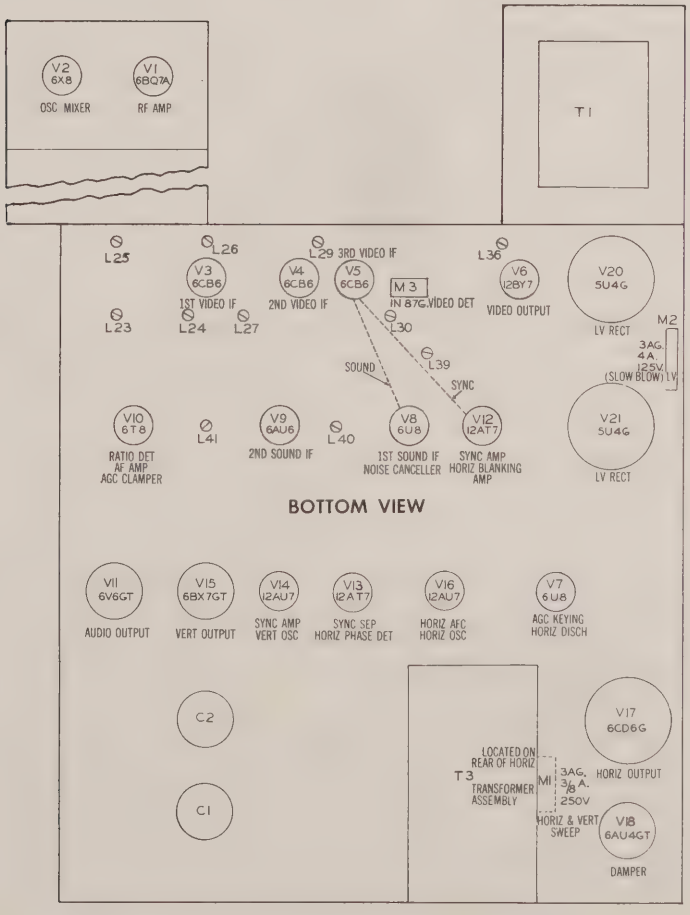
SYNC FAILURE
No vert. sync - **V14**
No horiz. sync - **V7, V13, V14, V16**
No vert. or horiz. sync - **V12, V13, V14**

SWEEP FAILURE
No raster, has sound - **V7, V16, V17, V18, V19, V22, Fuse (M1)**
No vertical deflection - **V14, V15**
Poor vert. linearity or foldover - **V14, V15**
Poor horiz. linearity or foldover - **V7, V16, V17, V18**
Narrow picture - **V7, V16, V17, V18, V19, V20, V21**
Vert. off freq. - **V14**
Horiz. off freq. - **V7, V13, V14, V16**

RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7A	▲†940Ω	▲†350KΩ	INF	.1Ω	0Ω	INF	700KΩ	100Ω	0Ω
V 2	6X8	0Ω	4.7KΩ	†15KΩ	.1Ω	0Ω	0Ω	165KΩ	†13KΩ	†9.2KΩ
V 3	6CB6	50KΩ	56Ω	0Ω	.1Ω	†7KΩ	†17KΩ	0Ω		
V 4	6CB6	50KΩ	68Ω	0Ω	.1Ω	†7.3KΩ	†39KΩ	0Ω		
V 5	6CB6	.1Ω	180Ω	0Ω	.1Ω	†6.6KΩ	†25KΩ	0Ω		
V 6	12BY7	90Ω	180KΩ	0Ω	0Ω	0Ω	.1Ω	†4KΩ	†18KΩ	0Ω
V 7	6U8	†30KΩ	†100KΩ	†40Ω	0Ω	.1Ω	550KΩ	†16KΩ	0Ω	1Meg
V 8	6U8	†40KΩ	150KΩ	†35KΩ	.1Ω	0Ω	†1.5KΩ	68Ω	†100KΩ	†35KΩ
V 9	6AU6	47KΩ	0Ω	0Ω	.1Ω	†27KΩ	†100KΩ	0Ω		
V 10	6T8	2Meg	22KΩ	2Meg	.1Ω	0Ω	550KΩ	0Ω	150KΩ	†470KΩ
V 11	6V6GT	0Ω	.1Ω	†1.5KΩ	†900Ω	470KΩ	INF	0Ω	220Ω	
V 12	12AT7	†39KΩ	13KΩ	0Ω	0Ω	0Ω	†3.3KΩ	100KΩ	0Ω	.1Ω
V 13	12AT7	†220KΩ	2.5Meg	0Ω	0Ω	0Ω	600KΩ	140KΩ	260KΩ	.1Ω
V 14	12AU7	†47KΩ	†220KΩ	22KΩ	0Ω	0Ω	●3.2Meg	2.2Meg	180Ω	.1Ω
V 15	6BX7GT	1Meg	†750Ω	700Ω	1Meg	†750Ω	700Ω	.1Ω	0Ω	
V 16	12AU7	†33KΩ	68KΩ	46Ω	0Ω	0Ω	†68KΩ	1.7Meg	0Ω	.1Ω
V 17	6CD6G	550KΩ	0Ω	120Ω	1Meg	1Meg	†12KΩ	.1Ω	†12KΩ	Top Cap ●23Ω
V 18	6AX4GT	INF	INF	INF	INF	†40Ω	INF	0Ω	.1Ω	
V 19	1B3GT		PINS	1 - 8	HAVE	INFINITE	RESISTANCE			Top Cap ●415Ω
V 20	5U4G	INF	20KΩ	INF	10Ω	INF	10Ω	INF	20KΩ	
V 21	5U4G	INF	20KΩ	INF	10Ω	INF	10Ω	INF	20KΩ	
V 22	21ACP4A	0Ω	†90KΩ	Pin 10 ●220KΩ	Pin 11 †190KΩ	Pin 12 .1Ω				

▲ MEASURED WITH RF AMP. SWITCH (M6) CLOSED.
† MEASURED FROM PIN 8 OF V21.
● MEASURED FROM PIN 3 OF V18.



TUBE PLACEMENT CHART

SET 275 FOLDER 8

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss of High Voltage".

INSUFFICIENT SWEEP

Check by substitution V7, V17, V18, V20 and V21. Check adjustments B2 and B3. Check T3, T5A, C101, C102, C103, C93, R104, R119 and other associated components.

DRIVE LINES

Check by substitution V7, V17 and V18. Check adjustment B3. Check C93, C103, R119, R104, T3, T5A and other associated components.

COMPRESSED LEFT SIDE

Check by substitution V17 and V18. Check horizontal output and damper stages for component failure or change of value.

FOLDS

Follow procedure outlined under "Drive Lines".

PIE CRUST EFFECT

Check by substitution V16, V7, V17 and V18. Check C94 for open. Check L42, C100, C99 and other associated components.

XMAS TREE EFFECT

Check by substitution V16, V7, V17 and V18. Check T3 and T5 for internal arcing. Check L42, C100, C98, C96, C97, R107, R103 and other associated components.

VERTICAL

LOSS OF SWEEP

Check by substitution V14 and V15. Check waveform W11.

If Satisfactory	If Unsatisfactory
Check T4, T5B, C2C, R95 and other associated components.	Check T2, C81, C82, R91, R5, R94 and other associated components.

INSUFFICIENT SWEEP

Check by substitution V14 and V15. Check height and vertical linearity controls for proper operation. Check T4, T5B, R91 and other associated components.

COMPRESSED AT BOTTOM

Check by substitution V14 and V15. Check R5, R91, C82, T2 and other associated components.

COMPRESSED AT TOP

Check by substitution V14 and V15. Check C1D, C82, R94, R6 and other associated components.

FOLDS

Check by substitution V14 and V15. Check C83, C84, R92 and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Check by substitution V12, V8, V13 and V14. Check C77, C78, C79, R77, R81, R84, R88 and other associated components.

LOSS OF VERTICAL SYNC-HORIZONTAL SYNC SATISFACTORY

Substitute V14. Check vertical integrator network. Check C81, T2, R90, R2B and other associated components.

LOSS OF HORIZONTAL SYNC-VERTICAL SYNC SATISFACTORY

Check by substitution V13 and V16. Check C87, C88, C96, C94, R107, R108, R4, L42 and other associated components.

HORIZONTAL BENDING

Check by substitution V7, V8, V12, V13 and V16. Check horizontal AFC network.

VIDEO

LOSS OF VIDEO

Substitute V6. Check C47, C49, R46, R45, L38, L37 and other associated components.

SOUND BARS (4.5MC BEAT)

Adjust tuner fine tuning for best sound and picture. Check adjustment A4. Check video IF alignment.

POOR CONTRAST

Substitute V6. Check contrast control. Check L34, L37, L35, R42, C47, C49 and other associated components.

NEGATIVE PICTURE

Substitute V6. Check picture tube. Check video crystal detector. Check L34, L33, L37, R42, C47, C49 and other associated components.

SMEAR

Substitute V6. Check video crystal detector network. Check L31, L32, L33, L34, L35, L37, C49 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V1, V3, V4, V5 and V6 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V8, V9, V10 and V11. Check stages V10 and V11 using audio signal generator. Apply audio signal across R1B.

If Satisfactory	If Unsatisfactory
Check ratio detector and audio IF stages for component failure or change of value.	Check C62, C65, C66, C3, R70, R73, R74, T8, speaker and other associated components.

BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustment A13. If still unsatisfactory, check audio IF alignment.

DISTORTED

Follow procedure outlined under "Weak or No Sound".

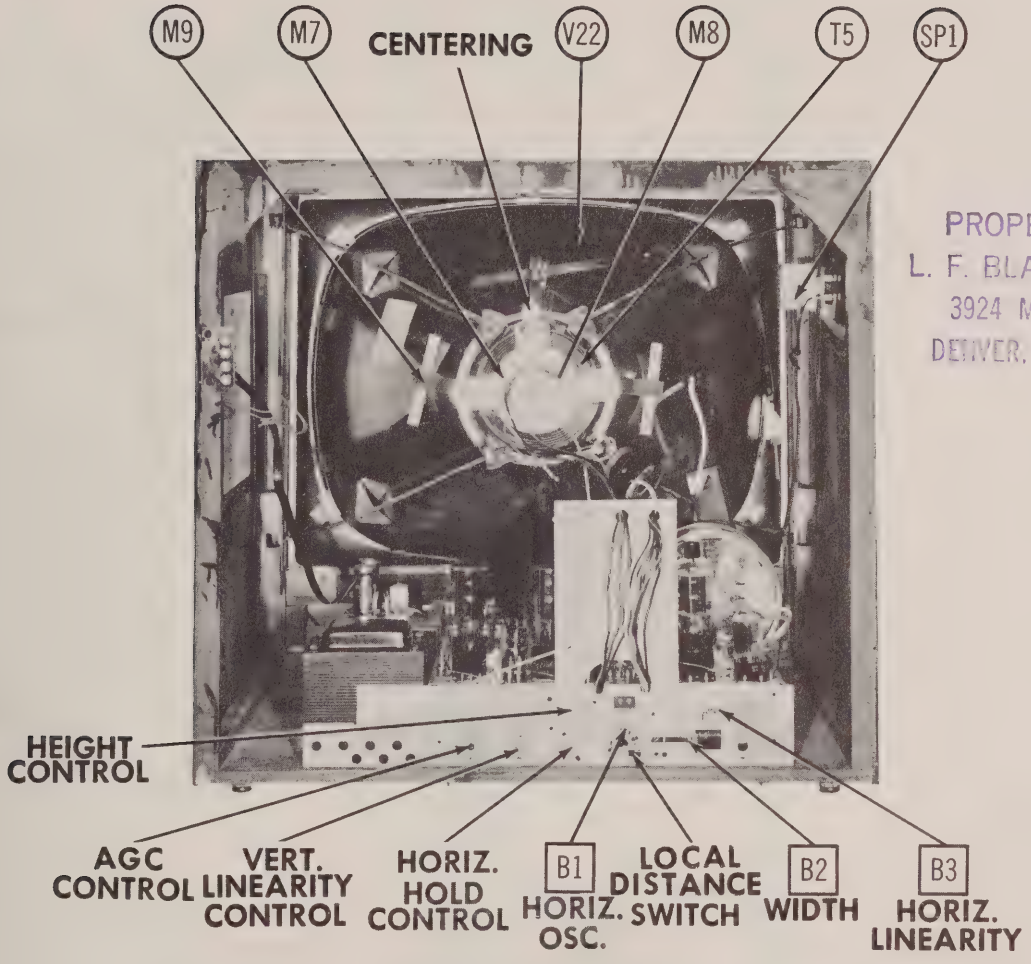
POWER

DEAD SET

If filaments fail to light, check AC interlock assembly. Check switch on volume control and T1. Check M2 fuse. If filaments light, check by substitution V20 and V21. Check B+ filter and decoupling network.

SMALL AND/OR DIM PICTURE

Check by substitution V20 and V21. Check B+ filter and decoupling network.



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

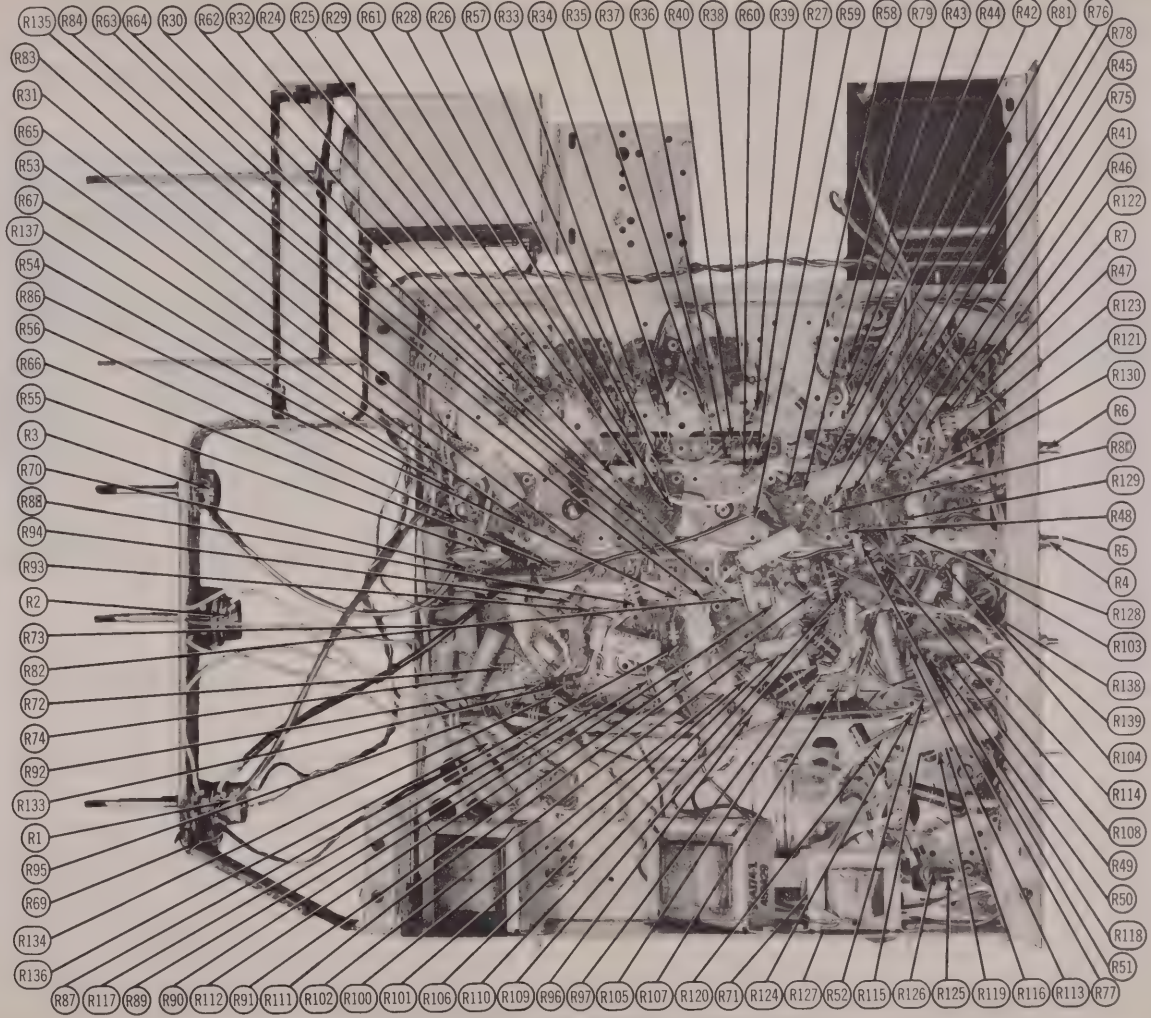
CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station preferably a test pattern.

Adjust the horizontal oscillator coil (B1) so that the picture remains in sync over the entire range of the horizontal hold control. The pull-in ability should be the same at both extremes of the horizontal hold control. The pull-in action at extreme settings of the horizontal hold control may be checked by momentarily switching off channel and back again and noting the pull-in action at either extreme of the control.

Simultaneously adjust the horizontal width slug (B2) and the horizontal linearity slug (B3) for a picture that is slightly wider than necessary to fill the picture mask and symmetrical from left to right.



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		General Electric PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6BQ7A	6BQ7A	9AJ	
V2	Osc.-Mixer	6X8	6X8	9AK	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Output	12BY7	12BY7	9BF	
V7	AGC Keying-Horizontal Disch.	6U8	6U8	9AE	
V8	1st. Sound IF Amp.-Noise Canceller	6U8	6U8	9AE	
V9	2nd. Sound IF Amp.	6AU6	6AU6	7BK	
V10	Ratio Detector-AF Amplifier-AGC Clamper	6T8	6T8	9E	
V11	Audio Output	6V6GT	6V6GT	7S	
V12	Sync Amplifier-Horiz. Blanking Amp.	12AT7	12AT7	9A	
V13	Sync Separator-Horiz. Phase Det.	12AT7	12AT7	9A	
V14	Sync Amplifier - Vert. Oscillator	12AU7	12AU7	9A	
V15	Vert. Output	6BX7GT	6BX7GT	8BD	
V16	Horiz. AFC-Horiz. Osc.	12AU7	12AU7	9A	
V17	Horiz. Output	6CD6G	6CD6G	5BT	
V18	Damper	6AX4GT	6AX4GT	4CG	
V19	HV Rectifier	1B3GT	1B3GT	3C	
V20	LV Rectifier	5U4G	5U4G	5T	
V21	LV Rectifier	5U4G	5U4G	5T	

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA					RETMA BASE TYPE	NOTES
	General Electric PART No.	CBS-HYTRON PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.		
V22	21ACP4A ①		21ACP4A ①	21ACP4A① 21AMP4A① 21ACP4 21AMPR		12N 12N 12N 12N	① Aluminized

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	General Electric PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	▲110	350	RCE-199						
B	■30	350							
C	▲5	350							
D	100	75							
C2A	▲40	350	RCE-201			FP432.4	TM-4081	T-680	
B	■40	350						FM-4530	
C	▲30	350							
D	10	25							
C3	25	25	RCE-086			TC26	TD-25-25	FM-0225	
C4	1.0	50	RCC-132			TC31	TD-1-50	MMT-0505	
C5	10	50	RCE-170			TC32	TD-10-50	FM-0510	
C6	5		RCW-3146	TCZ-5	NP0A-050	ZT-555			
C7	10		RCW-3144	TCZ-10	NP0K-100	ZT-541			
C8	47		RCW-3145	TCZ-47	NP0K-470	ZT-5447			
C9	800		RCW-3037	DD-801	831-801	DC-521			
C10	1000			MFT-1000					
C11	1000			MFT-1000					
C12	800		RCW-3037	DD-801	831-801	DC-521			
C13	800		RCW-3037	DD-801	831-801	DC-521			
C14	.5-3		RCY-080	829-3	3115-01-0R5	CT565A			
C15	1000			MFT-1000					
C16	2.2		RCW-3147	TCZ-2.2	NP0A-2R2				
C17	1000			MFT-1000					
C18	150		RCW-3148						
C19	47		RCW-3145	D6-470	831-470	UC-5447			
C20	.5-3		RCY-080	829-3	3115-01-0R5	CT565A			
C21	1000			MFT-1000					
C22	1000			MFT-1000					
C23	.82		RCW-3149						
C24	5		RCW-3151						
C25	22		RCW-3150						
C26	800		RCW-3037	DD-801	831-801	DC-521			
C27	33			TCN-33	N750K-330	NT-5433		KR-1433	
C28	10			TCZ-10	NP0K-100	ZT-541		KR-1410	Note 1
C29	82	500	UCG-2026					KR-1482	
C30	120	500	UCG-2030					KR-1312	
C31	24		RCW-3081	TCZ-24	NP0K-240			KR-1424	
C32	47	500				MCB225		KR-1447	
C33	820		RCW-3052	D6-821	GP2L-821	UC-5382		K-1382	
C34	800		RCW-3037	DD-801	831-801	UC-538		K-1380	
C35	5000		RCW-3014	DD-502	801-005	DC-525		C-1250	
C36	800		RCW-3037	DD-801	831-801	UC-538		K-1380	
C37	820		RCW-3052	D6-821	GP2L-821	UC-5382		K-1382	
C38	820		RCW-3052	D6-821	GP2L-821	UC-5382		K-1382	
C39	800		RCW-3037	DD-801	831-801	UC-538		K-1380	
C40	800		RCW-3037	DD-801	831-801	UC-538		K-1380	
C41	800		RCW-3037	DD-801	831-801	UC-538		K-1380	
C42	820		RCW-3052	D6-821	GP2L-821	UC-5382		K-1382	
C43	470		RCW-3097	D6-471	GP2K-471	UC-5347		K-1347	
C44	800		RCW-3037	DD-801	831-801	UC-538		K-1380	
C45	800		RCW-3037	DD-801	831-801	UC-538		K-1380	
C46	5		RCW-3113	TCZ-5	NP0A-050	ZT-555		KR-1550	
C47	.05	200	RCC-086	DF-503		PT415	IMP2-S5	330215	
C48	68	500	UCG-2024					KR-1468	
C49	.1	600	RCC-046	DF-104		PT601	IMP6-P1	330601	
C50	5	500	UCG-1005			MCB205		KR-1550	
C51	20	500	RCG-001					KR-1420	

CAPACITORS (cont)

ITEM No	RATING CAP	RATING VOLT	REPLACEMENT DATA General Electric PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	NOTES
C53	600		RCW-3037	DD-501	831-501	UC-538		K-1380	
C53	5000		RCW-3014	DD-502	811-005	DC-525		C-1250	
C54	1800		RCW-3107	D6-182	GP2L-182	UC-5218		C-1218	
C55	5000		RCW-3014	DD-502	811-005	DC-525		C-1250	
C56	.47	500	RCU-320	TC2-47	MP0K-470	MCB225		KH-1447	
C57	5000		RCW-3014	DD-502	811-005	DC-525		C-1250	
C58	5000		RCW-3014	DD-502	811-005	DC-525		C-1250	
C59	5000		RCW-3014	DD-502	811-005	DC-525		C-1250	
C60	.001	400	RCC-119	DD-103	GP2L-102	PT621	IMP6-DL	330611	
C61	.0022	400	RCC-056	DD-222	GP2-333-222	PT4222	IMP6-D222	3306222	
C62	10000		RCW-3054	DD-103	811-01	DC-511	IMP6-S1	330611	
C63	.01	200	UCC-008	D6-103	GP2-333-103	PT411	IMP4-S1	330411	
C64	.008	330				PT4D8	IMP4-D8	330638	
C65	.01	600	RCC-040	D6-103	GP2-333-103	PT611	IMP6-S1	330611	
C66	.008	1000				PT6S8			
C67	800		RCW-3037	DD-801	831-801	UC-538		K-1380	
C68	900		RCW-3037	DD-901	831-901	UC-538		K-1380	
C69	.001	600	RCN-095	DD-102	GP2L-102	PT621	IMP6-DL	330621	
C70	.003	600	RCN-030	DD-303	GP2L-303	PT631	IMP6-D3	330622	
C71	.05	300	UCC-045	DP-503		PT415	IMP2-S5	330215	
C72	800		RCW-3037	DD-801	831-801	UC-538		K-1380	
C73	900		RCW-3037	DD-901	831-901	UC-538		K-1380	
C74	.15	200				PT4015	IMP2-P15	3302015	
C75	800		RCW-3037	DD-801	831-801	UC-538		K-1380	
C76	900		RCW-3037	DD-901	831-901	UC-538		K-1380	
C77	.15	300				PT4015	IMP2-P15	3302015	
C78	.033	600	RCN-050			PT6S3	IMP6-S33	3306122	
C79	470	500	RCU-322					KH-1247	
C80A	2000						IMP6-D8	C-1230	
B	5000		#REK-001	+PC-109	+1405-01		IMP6-D5	C-1250	
C	5000						IMP6-D5	C-1250	
C81	.0047	600		D6-472	GP2-333-472	UC-5247	IMP6-D47	3306247	
C82	.047	600	RCN-041	DF-503		PT647	IMP6-S47	3306147	
C83	.047	600	RCN-041	DF-503		PT647	IMP6-S47	3306147	
C84	.018	200				PT4S5	IMP4-S15	330615	
C85	.01	600	RCN-063	D6-103	GP2-333-103	PT611	IMP6-S1	330611	
C86	.01	600	RCN-063	D6-103	GP2-333-103	PT611	IMP6-S1	330611	
C87	180	500	RCU-335					KR-1318	
C88	.0033	600	RCN-066	D6-332	GP2-333-332	PT6333	IMP6-D33	3306333	
C89	.001	600	RCN-063	DD-103	GP2L-102	PT621	IMP6-D1	330621	
C90	.02	300	UCC-009	DP-203	811-03	PT423	IMP2-S3	330212	
C91	330	500	RCU-336					KR-1333	Note 3
C92	1200	500	RCU-318					CR-1212	
C93	820	500						KR-1262	
C94	.001	600	RCN-062	DD-102	GP2L-102	PT621	IMP6-D1	330621	
C95	.1	200	UCC-048	DP-104		PT401	IMP2-P1	330201	
C96	470	500	RCU-322					KR-1274	
C97	330	500	RCU-336					KR-1322	
C98	100	500	RCU-334			MCB235		KR-1310	
C99	0018	500	RCN-033	D6-182	GP2L-182	PT6S18		330618	
C100	1000	500	RCU-333			MCB255		KR-1210	
C101	100	500	RCU-334			MCB235		KH-1310	
C102	.0047	600		D6-472	GP2-333-472	PT6347	IMP6-D47	3306247	
C103	.0047	600		D6-472	GP2-333-472	PT6247	IMP6-D47	3306247	
C104	.1	600	RCC-046	DF-104		PT601	IMP6-P1	330601	
C105	5000		RCW-3014	DD-502	801-005	DC-525		C-1250	
C106	.01	600	RCN-025	D6-103	GP2-333-103	PT611	IMP6-S1	330611	
C107	.056	600	RCN-064			PT6156		3306156	
C108	.01	1000	RCN-091			PT611	CT10-S1	2UU-01	
C109	.001	600	RCN-095	D6-102	GP2L-102	PT621	IMP6-D1	330621 +	
C110	.0047	600	RCN-051	D6-472	GP2-333-472	PT6247	IMP6-D47	3306247	
C111	160	3000	RCW-3096						Note 2
C112	800		RCW-3037	DD-801	GP1K-801	UC-538		K-1380	
C113	330			D6-331	GP1K-331	UC-5333		K-1333	
C114	900			DD-901	GP1K-901	UC-538		K-1380	
C115	.05	400		DP-503		PT415	IMP4-S5	330415	

4 Items C80A, C80B, C80C, R98A, R98B and R98C are combined in one unit.
Note 1. Some versions use 18MMF in this application (part #RCW-3168).
Note 2. Some versions use a 180MMF in this application.
Note 3. Some versions use 470MMF in this application (part #RCU-322).

CONTROLS

ITEM No.	RATING RESIST-ANCE	RATING WATTS	REPLACEMENT DATA General Electric PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	750Ω	½	RRC-286	*QJ-596	RTV-689	F3-2	UF13L	Contrast - Panel
B	500KΩ	½				R2-46	UR55T-254 ①	Volume Tapped at 270KΩ - Rear
C	Switch					UB-26	KD-1	Attach to R1A
R2A	15KΩ	2	RRC-263					Brightness (Wire-wound)-Panel
B	1.5Meg	½						Vert. Hold - Rear
R3A	100KΩ	½	RRC-292	QI3-128	A47-100K-Z	B-41	U-39	Tone
B	Shaft		Not Req.	Not Req.	F3-3	Not Req.	Not Req.	Attach to R3A
R4A	100KΩ	½	RRC-247	QII-128	A47-100K-B	AB-40	BU-41	Horiz. Hold
B	Shaft		Not Req.	Not Req.	KS3-3	AK-1	Not Req.	Attach to R4A
R5A	4Meg	½	RRC-231	QII-161	A47-4Meg-S	AB-26	U-37	Height
B	Shaft		Not Req.	Not Req.	FKS3-1/4	AK-1	Not Req.	Attach to R5A
R6A	2000Ω	2	RRC-291	WK-2000	A43-2000-S		R2500L	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FKS-1/4		Not Req.	Attach to R6A
R7A	100KΩ	½	RRC-293	BII-128				AGC
B	Shaft		Not Req.	TM-1KIT				Attach to R7A

* CONCENTRIKIT EQUIVALENT: KIT K-2. BASE ELEMENTS & SHAFTS: BII-105 & PI-121 (PANEL)
B19-133X & RS-216 (REAR)
78-1 SWITCH

† Universal replacement (Mallory exact duplicate part no. UE-115)

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA General Electric PART No.	IRC PART No.	NOTES
R8	47KΩ	1	URD-089	BTS-47K	
R9	22KΩ	1	URD-081	BTS-22K	
R10	100Ω	1	URD-025	BTS-100	
R11	820KΩ	1		BTS-820K	
R12	470Ω	1	URD-041	BTS-470	
R13	470KΩ	1		BTS-470K	
R14	4700Ω	1	URD-065	BTS-4700	Note 1
R15	1500Ω	1		BTS-1500	Note 1
R16	100Ω	1	URD-073	BTS-106	Note 1
R17	6800Ω	1	URE-089	BTA-6800	
R18	47KΩ	1	URD-089	BTS-47K	Note 1
R19	390Ω	1	URD-039	BTS-390Ω	
R20	15KΩ	1	URD-007	BTS-15K	
R21	150KΩ	1	URD-101	BTS-150K	
R22	4700Ω	1	URD-065	BTS-4700	Note 2
R23	1200Ω	1	URD-061	BTS-1200	
R24	18Ω	1	URD-007	BTS-18	
R25	56Ω	1	URD-019	BTS-56	
R26	1000Ω	1	URD-049	BTS-1000	
R27	22KΩ	2	URF-081	BTB-22K	
R28	680KΩ	1	URE-089	BTA-680K	
R29	47KΩ	1		BTA-47K	
R30	2200Ω	1	URD-057	BTS-2200	
R31	47KΩ	1	URD-089	BTS-47K	
R32	2200Ω	1	URD-057	BTS-2200	
R33	68Ω	1	URD-021	BTS-68	
R34	39KΩ	2	URD-089	BTS-34K	
R35	6800Ω	1	URE-089	BTA-6800	
R36	470Ω	1	URD-041	BTS-470	
R37	180Ω	1	URD-031	BTS-180	
R38	18KΩ	1	URD-079	BTS-180	
R39	560KΩ	1	URF-087	BTB-5600	
R40	470Ω	1	URD-041	BTS-470	
R41	3300Ω	1	URD-061	BTS-3300	
R42	330KΩ	1	URD-109	BTS-330K	
R43	330KΩ	1	URD-109	BTS-330K	
R44	9Ω	1	URD-001	BTS-10	
R45	18KΩ	2	URF-079	BTB-18K	
R46	6000Ω	10	RRW-053	PW10-6000	
R47	180KΩ	1	URD-097	BTS-180K	Note 3
R48	47KΩ	1	URD-089	BTS-47K	
R49	33KΩ	2	URF-085	BTB-33K	
R50	330KΩ	1	URD-109	BTS-330K	
R51	22KΩ	1	URE-081	BTA-22K	
R52	33KΩ	1	URD-085	BTS-33K	
R53	150KΩ	1	URD-101	BTS-150K	
R54	390KΩ 5%	1	URD-111	BTS-390K 5%	
R55	5.1Meg 5%	1	URD-138	BTS-5.1Meg 5%	
R56	100KΩ	1	URD-097	BTS-100K	
R57	100KΩ	1	URD-097	BTS-100K	
R58	68Ω	1	URD-021	BTS-68	
R59	33KΩ	1	URD-085	BTS-33K	
R60	1500Ω	1	URD-053	BTS-1500	
R61	47KΩ	1	URD-089	BTS-47K	
R62	470KΩ	1	URD-113	BTS-470K	
R63	27KΩ	1	URD-083	BTS-27K	
R64	100KΩ	1	URD-097	BTS-100K	
R65	22KΩ	1	URD-081	BTS-22K	
R66	1.5Meg	1	URD-125	BTS-1.5Meg	
R67	22KΩ	1	URD-081	BTS-22K	
R68	33KΩ	1	URD-085	BTS-33K	
R69	22Ω	1	URD-009	BTS-22	
R70	470KΩ	1	URD-113	BTS-470K	
R71	120Ω	1	URD-027	BTS-120	
R72	470KΩ	1	URD-113	BTS-470K	
R73	220Ω	1	URE-033	BTA-220	
R74	2200Ω	1	URE-057	BTA-2200	

4 Items R98A, R98B, R98C, C80A, C80B, C80C are combined in one unit.
Note 1: Not used in some versions.
Note 2: Some versions may use a 100KΩ resistor in this application.
Note 3: Some versions may use a 1Meg resistor in this application.
Note 4: Some versions may use a 15KΩ 2 watt resistor in this application.
Note 5: Some versions may use a 800Ω 2 watt resistor in this application.
Note 6: Some versions may use a 500Ω 10 watt resistor in this application.

ITEM No	RATING	REPLACEMENT DATA General Electric PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	RCA TYPE No.	Halldorson PART No.	Thordarson PART No.
	PRI. SEC. 1 SEC. 2							
T1	117VAC 520VCT 5VAC ②23.8DA .325ADC ⑤6A	RTP-323					P9739 ① ②⑤	
	SEC. 3 SEC. 4 SEC. 5							
	12.6VCT ④5.9A							

① Enlarge mounting holes.
② Use original special shell by drilling ⅜" hole in other side for leads.
③ Series 6.3V for 12.6VCT.

TRANSFORMER (POWER)

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA General Electric PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Vert. Osc. Trans.	RTL-185	B6702	A-3003	209T1 ①	V405	A-8125	24A87 ①	A-97X
T3	Horiz. Output Trans.	RTO-151 ②							A-106X ③
T4	Vert. Output Trans.	RTO-185							
T5A	Yoke-Horiz. (26MC)	RLD-059 ④							
B	Vert. (45MC)								
T6	Horiz. Lin. (4.5-17MC)	RLD-060	RF800 ⑤⑥	MWC-1 ③ ⑦	20AR3	20IR10 ⑤	WC-5 ⑤⑦	WC-18 ⑤	WC-12 ⑤ ⑦
T7	Width (1.3-9.7MC) (.25-2.1MC)	RLD-065							

① Drill new mounting hole(s).
② Includes C111 and R181.
③ Connect as auto transformer
④ Includes R98 and R99.
⑤ Enlarge mounting hole.
⑥ Connect to coded #1 and #2 terminals.
⑦ Connect to coded blue and red terminals.

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA General Electric PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T8	5.1KΩ	3.2Ω	RTO-140	A-3977	A-2930	S-3X	21U07	24S51	

SPEAKER

ITEM No.	RATINGS SIZE	FIELD	V. C. IMP	REPLACEMENT DATA General Electric PART No.	VIKING PART No.	QUAM PART No.	NOTES
SP1	6"	PM	3.2Ω	S850D-7	676	6A21	1 Used in models 21C347, 21C348 and
	8"	PM	3.2Ω	S825D7 ①	829	8A21	21C349.
	12"	PM	3.2Ω	12J11	12A31	12A21	② Used in models 21C350 and 21C351.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA General Electric PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	VHF Ant. Trap	.5OCT	.1Ω	RLA-042				
L2	IF Trap	.3Ω		RLI-284				
L3	VHF Ant. Coil	0Ω		RSX-046				Channel 6, Part of complete assembly
L4	VHF Ant. Coils	0Ω		RSX-046				Part of complete ass'y.
L5	VHF Ant. Coil	0Ω		RSX-046				Channel 13, Part of complete assembly
L6	UHF IF Input	0Ω	0Ω	RTL-184				Channel 2, Part of complete assembly
L7	VHF Ant. Coil	0Ω		RSX-045				
L8	Neut. Coil	0Ω		RLI-280				Channel 13, Part of complete assembly
L9	VHF RF Coil	0Ω		RSX-044				Part of complete ass'y.
L10	VHF RF Coils	0Ω		RSX-044				Channel 6, Part of complete assembly
L11	VHF RF Coil	0Ω		RSX-044				Part of complete ass'y.
L12	UHF IF Coil	0Ω		RSX-044				Part of complete assembly
L13	VHF Hi-Band	0Ω						
L14	VHF Mixer Grid Coil	0Ω		RSX-043				Part of complete ass'y.
L15	VHF Mixer Grid Coil	0Ω		RSX-043				Channel 6, Part of complete assembly
L16	VHF Mixer Grid Coil	0Ω		RSX-043				Channel 13, Part of complete assembly
L17	UHF IF Coil	0Ω		RSX-043				Part of complete ass'y.
L18	VHF Osc. Coils	0Ω		RSX-042				Part of complete ass'y.
L19	VHF Osc. Coil	0Ω		RSX-042				Channel 13, Part of complete assembly
L20	RF Choke	0Ω						Note 1
L21	RF Choke	0Ω		RLI-288				
L22	VHF Conv. Plate	0Ω		RLI-285				Includes cap.
L23	41.25MC trap	0Ω		RLI-293		20-1045	6226	
L24	39.25MC trap	0Ω		RLI-294				
L25	47.25MC trap	0Ω		RLI-295				
L26	1st Video IF	.1Ω		RLI-292				
L27	2nd Video IF	.1Ω	.1Ω	RTL-164		17-4832	6219	
L28	P1L Choke	.1Ω		RTL-142		19-2001	6175	1.4 Microhenries
L29	3rd Video IF	.1Ω	.1Ω	RTL-164		17-4823	6219	
L30	4th Video IF	.1Ω	.1Ω	RTL-154		17-4524		
L31	Series Peaking Coil	6.2Ω		RLI-138		19-1005	4612	10 Microhenries; IRC part no. CL-1
L33	Series Peaking Coil	2.1Ω		RLF-084		19-3036	TV-180	6176	31 Microhenries
L33	Shunt Peaking Coil	6.5Ω		RLI-197		19-3250	TV-185	6154	220 Microhenries
L34	Series Peaking Coil	3.6Ω		RLI-295		19-7068		4630	68 Microhenries
L35	Cathode Choke	1.8Ω		RLI-122		19-1003		4606	2.2 Microhenries; IRC part no. CLA
L36	4.5MC trap	1.1Ω		RLI-291		20-1004	TV-151	1469	
L37	Series Peaking Coil	6.7Ω		RLI-215		19-3180*	TV-184*	6180*	180 Microhenries; Wound on 22KΩ resistor
L38	Shunt Peaking Coil	2.3Ω		RLI-280		19-7068		4630	68 Microhenries
L39	1st Sound IF	2.1Ω		RLI-243		20-1004	TV-151	1469	
L40	2nd Sound IF	3.8Ω	4Ω	RLI-280		17-1031*	TV-108	1466*	
L41	Ratio Det.	8.3Ω	.6OCT	RTD-015		17-3403*	TV-110*	1468*	Includes 330Ω resistor

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	General Electric PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L42	Horiz. Osc.	108Ω		RLD-091			6324	Tapped at 46Ω
L43	RF Choke	8.2Ω		RLI-138	19-1005		4612	10 Microhenries; IRC part no. CL-1
L44	RF Choke	3Ω			19-1003		4608	3.3 Microhenries; IRC part no. CLA - Note 1

* Parallel with 22KΩ resistor.
■ Drill one new mounting hole.
▲ Drill new mounting holes.
● Drill mounting holes and add 220Ω resistor externally.
Note 1: Not used in some versions.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	General Electric PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L45	.260ADC	40Ω	1.9 Hy.	RLF-069	C-2326 ①	C-2998 ①	C-17X①	C5037	26C44

① Drill one new mounting hole.

FUSES

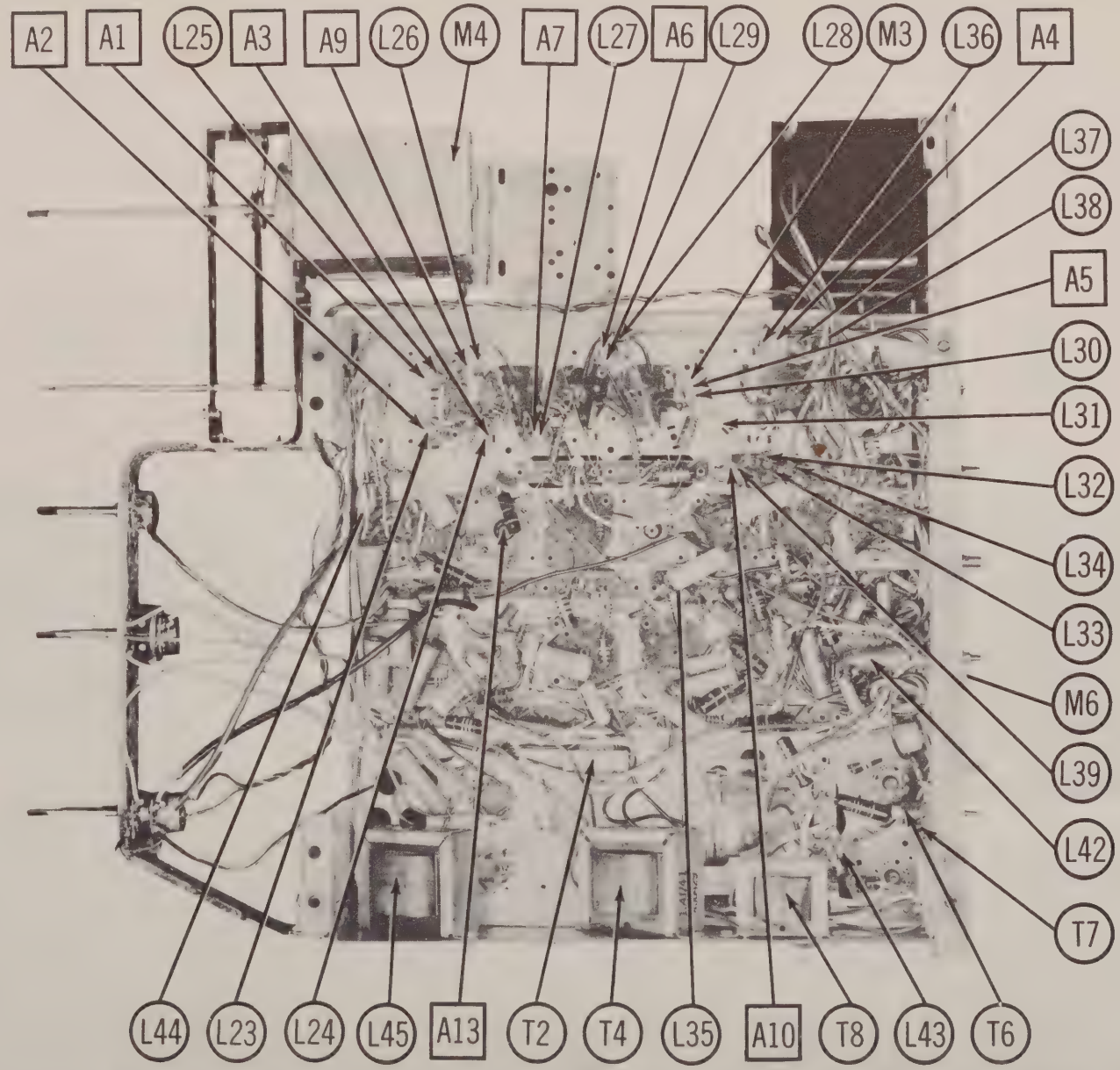
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			General Electric PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	3/8A 250V	REF-012	RMC-053	312.375 (3AG - 3/8A)	357001	AGC 3/8	4405
M2	3AG (S/B)	4A- 125V	REF-010	RJB-049	313004 (3AG-S/B-4A)		MDX-4	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		General Electric PART No.	SYLVANIA PART No.		
M3	1N87G	RED-001	1N60 or 1N132		Video Det.

MISCELLANEOUS

ITEM No.	PART NAME	General Electric PART No.	NOTES
M4	Tuner	RJX-059	VHF- Not used in some versions
	Tuner	RJX-062	VHF- Used in some versions
M5	Tuner	RUX-006	UHF (UHF-VHF Models) Not used in some versions
	Tuner	RUX-007	UHF (UHF-VHF Models) Used in some versions
M6	Switch	RSS-010	RF On-Off (B_+ Plate Supply to V1)
M7	Focus Magnet	RLF-067	Includes Centering device
M8	Ion Trap	RET-013	
M9	Correction Magnet	REA-011	2 Used in Models 21T30, 21T31, 21C350, 21C351
	Correction Magnet	REA-012	3 Used in Models 21C347, 21C348, 21C349
	Cabinet	RAV-246	Model 21T30
	Cabinet	RAV-247	Model 21T31
	Cabinet	RAV-248	Model 21C350
	Cabinet	RAV-249	Model 21C351
	Cabinet	RAV-254	Model 21C348
	Cabinet	RAV-255	Model 21C349
	Cabinet	RAV-261	Model 21C347
	Knob	RDK-403	Contrast - Model 21T30, 21C350, 21C347, 21C348
	Knob	RDK-414	Contrast - Models 21T31, 21C351, 21C349
	Knob	RDK-405	Brightness or UHF Fine Tuning - Models 21T30, 21C350, 21C347, 21C348
	Knob	RDK-416	Brightness or UHF Fine Tuning - Models 21T31, 21C351, 21C349
	Knob	RDK-410	UHF Dial - Models 21T30, 21C350
	Knob	RDK-417	UHF Dial - Models 21T31, 21C351, 21C349
	Knob	RDK-418	Tone - Models 21T30, 21C350, 21C347, 21C348
	Knob	RDK-423	On-off-volume - Models 21T30, 21C350, 21C347, 21C348
	Knob	RDK-424	On-off-volume - Models 21T31, 21C351, 21C349
	Knob	RDK-428	Tone - Models 21T31, 21C351, 21C349, 21C347, 21C348
	Knob	RDK-426	Vert. or VHF Tuning - Models 21T30, 21C350, 24C349
	Knob	RDK-427	Vert. or VHF Tuning - Models 21T31, 21C351
	Knob	RDK-434	VHF Channel Selector - Models 21T30, 21C350, 21C347, 21C348
	Knob	RDK-438	VHF Channel Selector - Models 21T31, 21C351, 21C349
	Knob	RDK-436	UHF Channel Selector - Models 21T30, 21C350, 21C347
	Knob	RDK-440	UHF Channel Selector - Models 21T31, 21C351, 21C349
	Safety Glass	RDW-067	
	Mask	RDM-052	Models 21T30, 21C350, 21C347
	Mask	RDM-053	Models 21T31, 21C351, 21C348, 21C349



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

TROUBLE SHOOTING AIDS (cont)

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V16, V17, V7, V18 and V19. Check M1 fuse. Check waveform W19.

If Satisfactory	If Unsatisfactory
Check T3, T5A, T6, T7, C105, C107, C106, C104, R119, R126, R125 and other associated components.	Check L42, C96, C99, C100, C101, C102, C103, R107, R111, R114 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V17, V18, V20 and V21. Check T3, T5A, C2D, C103, R117, R119 and other associated components.

BLOOMING

Check by substitution V17, V18, V19, V20 and V21. Check C103, C111, R117, R119, R132 and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss of Video".

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak or No Sound".

RASTER, NO SOUND, NO PICTURE

Check by substitution V1, V2, V3, V4, V5 and V6. Check video IF components for failure or change of value.

NO RASTER, NO SOUND

Follow procedure outlined under "Dead Set".

KEYSTONE EFFECT

Check T5 and its associated components.

INTERMITTENT STREAKS

Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.

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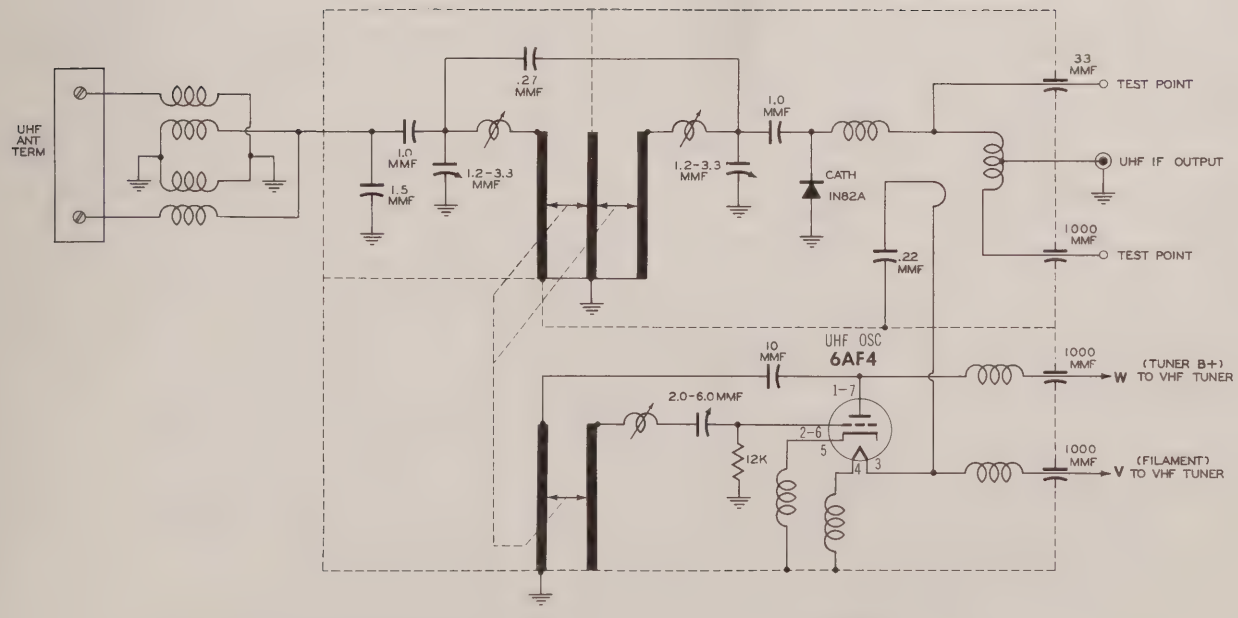
DENVER, COLORADO



UHF TUNER RUX-006/007 USED WITH SOME VERSIONS

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UHF TUNER SCHEMATIC

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF Tuner Oscillator Circuit may be accomplished by removing the Channel Selector and Fine Tuning knobs.

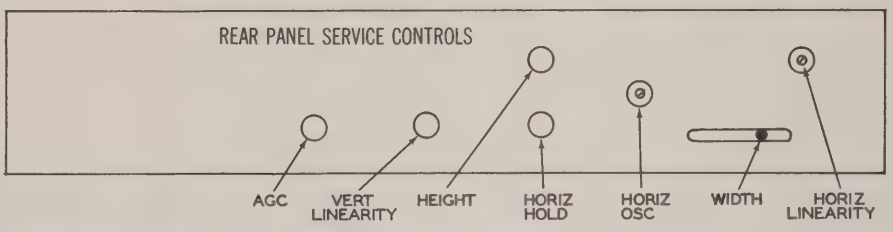
PICTURE TUBE SAFETY GLASS CLEANING

For picture tube safety glass cleaning, it is necessary to remove chassis. (See disassembly instructions.)

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions.)

SERIVCE ADJUSTMENT LOCATION



SPECIAL ADJUSTMENTS

RF AMPLIFIER SWITCH

This switch is located on rear panel of the chassis. Turn off only when two or more strong local signals are present. When receiving normal or fringe area signals, the RF switch must be in the "On" position.

AGC CONTROL ADJUSTMENT

This control (R7) is located on rear panel of chassis. It should be adjusted for best receiver sensitivity and least noise interference. When adjusting R7, note screen so sync stability is not distorted.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the Horiz. Oscillator Circuit can be made from the rear panel of the chassis. Set the Horiz. Hold Control at the mid-position of its range and adjust the Horiz. Osc. slug L42 until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate Sound IF Detector Buzz, adjust the Ratio Detector Secondary (L41) located on top of chassis. (See tube placement chart.)

FUSES

Two fuses are used. One for Horiz. Sweep Circuit protection and one for LV power supply protection. (For location see tube placement chart.)

CENTERING

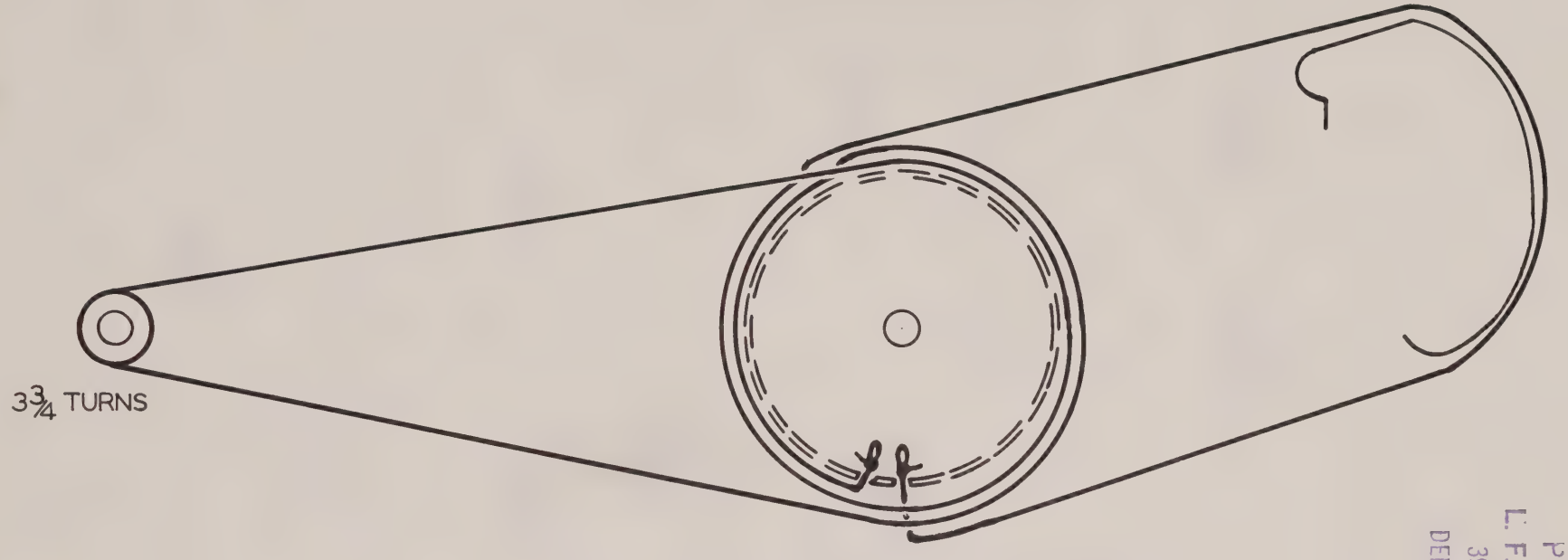
Centering is accomplished mechanically by means of a centering lever on the P. M. Focusing assembly. Adjust the centering lever from side to side and up and down until the picture is properly centered.

ANTI-PIN CUSHION ADJUSTMENT

Reduce the picture size so that the sides of the raster are visible and position the magnets so that all sides are straight lines and the corners are at right angles.

DISASSEMBLY INSTRUCTIONS

1. Remove 8 push-on type control knobs from front panel of cabinet.
2. Remove 8 wood screws and 1 metal screw. Remove rear cover.
3. Remove 2 wood screws from antenna bracket.
4. Disconnect 2 speaker leads, HV lead, deflection yoke socket and picture tube socket.
5. Remove 4 chassis bolts. Remove chassis.
6. Remove 4 speaker nuts. Remove speaker.



FULL COUNTER-CLOCKWISE POSITION

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UHF DRIVE CORD STRINGING

PROPERTY OF
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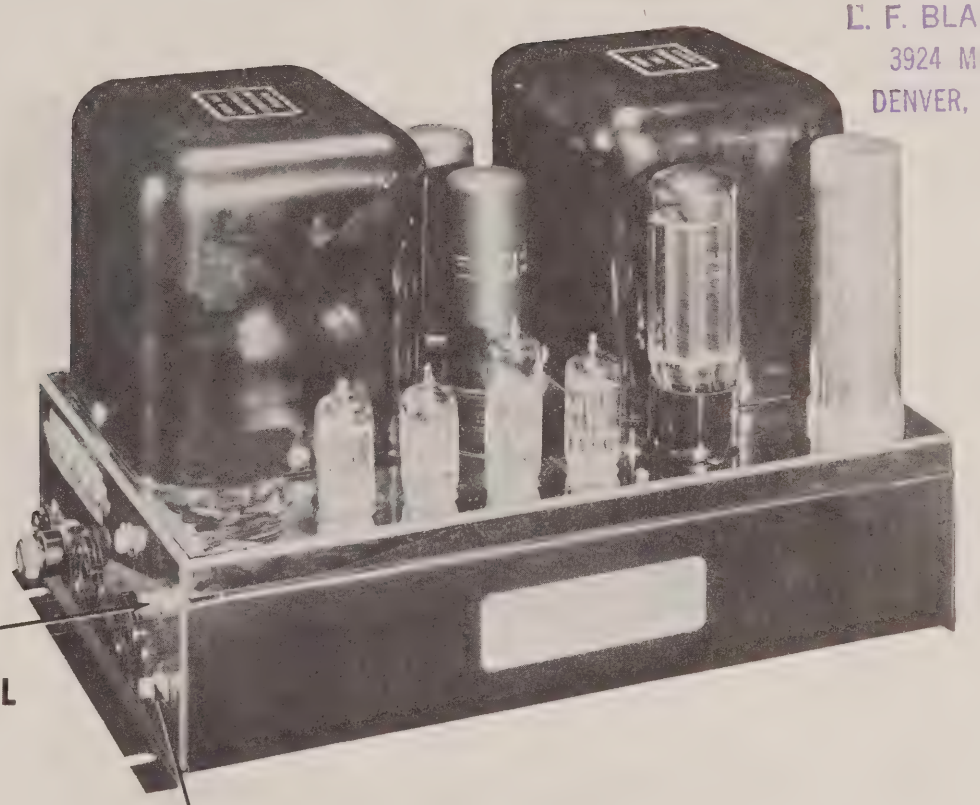
MC INTOSH
MODEL MC-30



MC INTOSH
MODEL MC-30

TRADE NAME	Mc Intosh Model MC-30
MANUFACTURER	Mc Intosh Laboratory, Inc., 320 Water St., Binghamton, N.Y.
TYPE SET	AC Operated 30 Watt Audio Amplifier
TUBES (Seven)	Types 12AX7 Preamp., 12AU7 AF Amp.-Phase Inverter, 12BH7 Driver, 12AX7 Driver, (2) 1614 Output, 5U4GA Rectifier
POWER SUPPLY	117/125 Volts AC-50/60 Cycles RATING 1.03 Amp. @ 117 Volts AC

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		MC INTOSH PART No.	STANDARD REPLACEMENT		
V1	Preamplifier	12AX7	12AX7	9A	
V2	AF Amplifier-Phase Inverter	12AU7	12AU7	9A	
V3	Driver	12BH7	12BH7	9A	
V4	Driver	12AX7	12AX7	9A	
V5	Output	1614	1614	7S	
V6	Output	1614	1614	7S	
V7	Rectifier	5U4GA	5U4GA	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT	MC INTOSH PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	▲40	450				FP378	TM-804020-450	T-180	
B	■80	450							
C	▲20	450							
C2	20	50				TC36	TD-25-50	FM-0525	
C3	10	450				TC72	TD-10-450	FM-4510	
C4	.1	400		DF-104		PT401	IMP4-P1	330401	
C5	.47	200				PT4047	IMP2-P47	3302047	
C6	470			D6-471	GP2K-471	UC-5347			
C7	.22	400				PT4022	IMP4-P22	3304022	
C8	.047	400		DF-503		PT4147	IMP4-S47	3304147	
C9	.047	400		DF-503		PT4147	IMP4-S47	3304147	
C10	.25	600				PT6025	IMP6-P25	3306025	
C11	.25	600				PT6025	IMP6-P25	3306025	
C12	.1	400		DF-104		PT401	IMP4-P1	330401	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MC INTOSH PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	6154455	Q11-133	A47-500K-S	AB-59	U-50	Gain
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R1A
R2	250KΩ	½	6154480	Q11-201				Hum Adj.

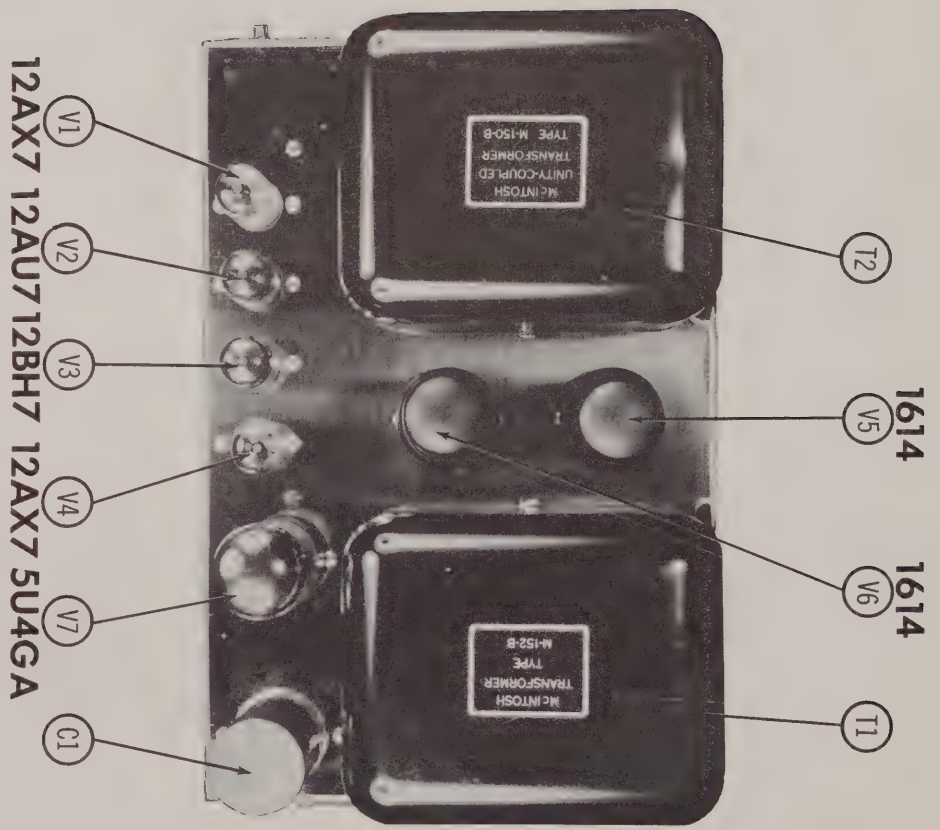
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MC INTOSH PART No.	IRC PART No.	
R3	100KΩ	½		BTS-100K	
R4	27KΩ	½		BTS-27K	
R5	3.3Meg	½		BTS-3.3Meg	
R6	3300Ω	½		BTS-3300	
R7	68Ω 5%	½		BTS-68 5%	
R8	100KΩ	½		BTS-100K	
R9	2200Ω 5%	½		BTS-2200 5%	
R10	330KΩ	½		BTS-330K	
R11	1Meg	½		BTS-1Meg	
R12	1.2Meg	½		BTS-1.2Meg	
R13	1Meg	1½		BTS-1Meg	
R14	18KΩ	1		BTA-18K	
R15	27KΩ 5%	½		BTS-27K 5%	
R16	2.2Meg	½		BTS-2.2Meg	
R17	3000Ω 5%	½		BTS-3600 5%	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MC INTOSH PART No.	IRC PART No.	
R18	220KΩ	½		BTS-220K	
R19	1200Ω	½		BTS-1200	
R20	12KΩ	2	*	BTB-12K	
R21	330KΩ	½		BTS-330K	
R22	220KΩ	½		BTS-220K	
R23	12KΩ	2	*	BTB-12K	
R24	100KΩ 5%	½		BTS-100K 5%	
R25	1Meg	½		BTS-1Meg	
R26	820KΩ 5%	½		BTS-820K 5%	
R27	220KΩ	½		BTS-220K	
R28	1Meg	½		BTS-1Meg	
R29	220KΩ	½		BTS-220K	
R30	3300Ω	1½		BTS-3300	
R31	150Ω	10		PW10-150	
R32	10KΩ	2		BTB-10K	

* R20 and R23 are matched within 1% when replacing.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	MC INTOSH PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T1	117/125 VAC ⓐ 1.03A	752VCT .110ADC	5VAC ⓐ 3A	6.3VAC ⓐ 3.3A	M-152-B	PC-8410①				

① Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.1	SEC.1	MC INTOSH PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	
T2	1KΩ CT	16Ω tap ⓐ	M-150-B						
	PRI. 2	8Ω,4Ω							
	RES	SEC. 2							
	36.4Ω CT tap ⓐ 30.4Ω	RES 1.4Ω							

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	MC INTOSH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	RF Choke	1.2Ω			19-1001		4604	1.5 Microhenries IRC part #CLA
L2	RF Choke	2.2			19-1002		4606	2.7 Microhenries IRC part #CLA

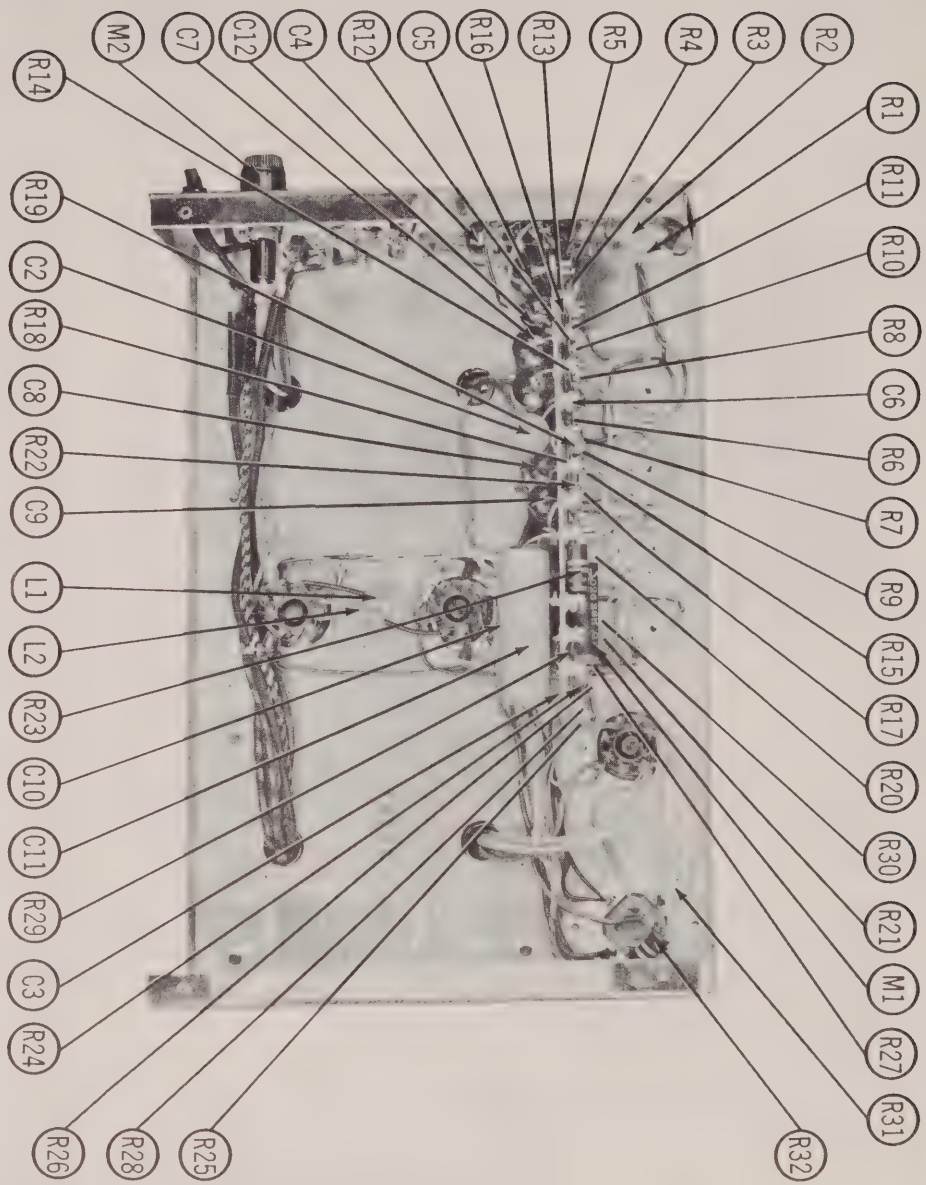
SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	MC INTOSH PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.004ADC		8A25P	V-20HP			026-28H-Q	

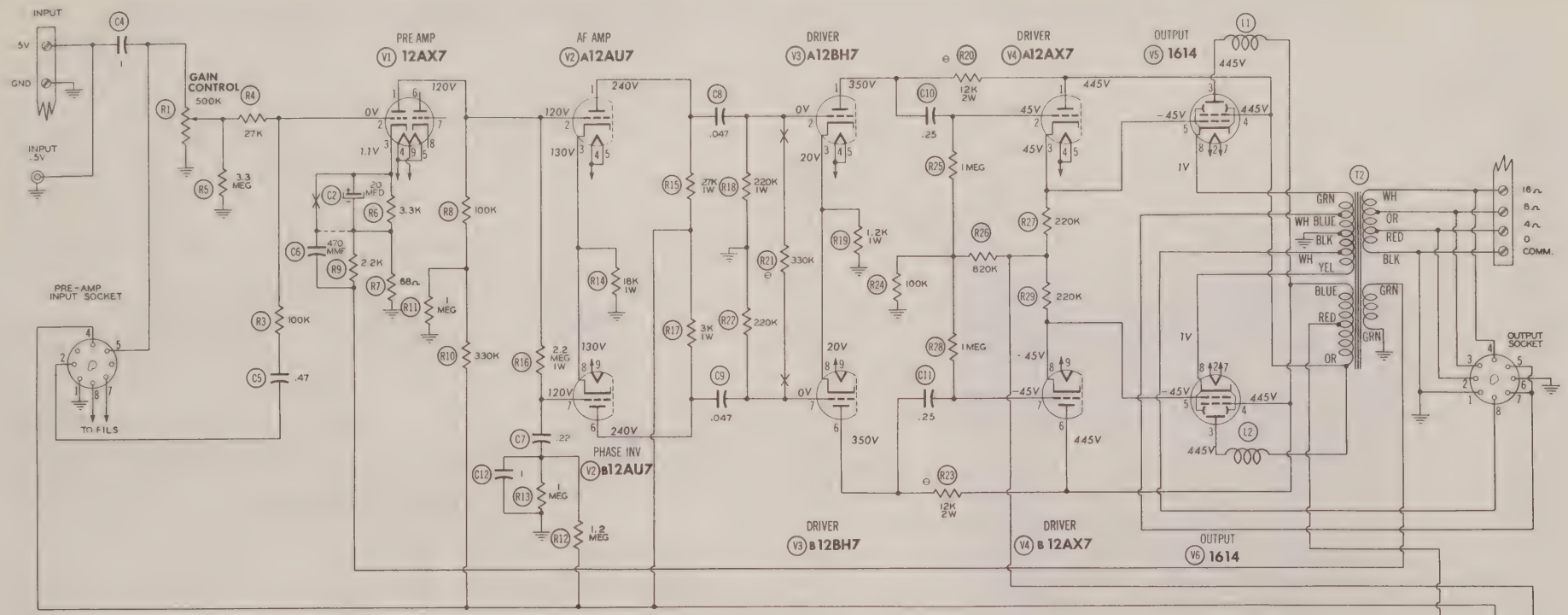
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MC INTOSH PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	3A 250V			312002 (3AG -3A)	342001	AGC 3	HKP

CHASSIS—BOTTOM VIEW



MC INTOSH MODEL MC-30



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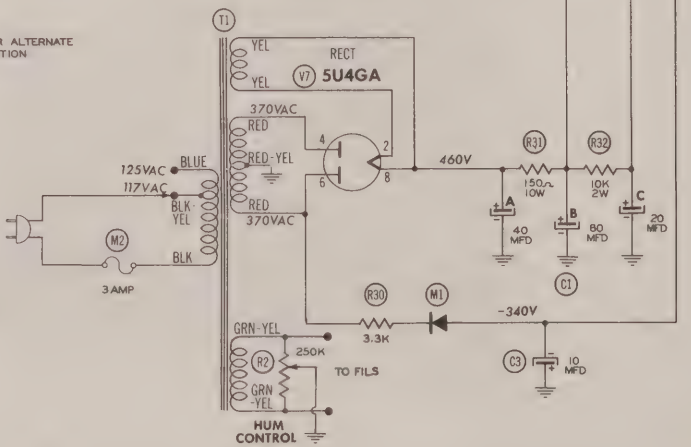
θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AX7	†680KΩ	30KΩ	3.5KΩ	45Ω	45Ω	NC	NC	NC	45Ω
V 2	12AU7	†38KΩ	†650KΩ	18KΩ	45Ω	45Ω	†40KΩ	†4.5Meg	18KΩ	45Ω
V 3	12BH7	12.8KΩ	220KΩ	1.2KΩ	45Ω	45Ω	12.8KΩ	220KΩ	1.2KΩ	45Ω
V 4	12AX7	†200Ω	1.1Meg	1Meg	45Ω	45Ω	†200Ω	1.1Meg	1Meg	45Ω
V 5	1614	0Ω	45Ω	†200Ω	†200Ω	850KΩ	NC	45Ω	15Ω	
V 6	1614	0Ω	45Ω	†200Ω	†200Ω	850KΩ	NC	45Ω	20Ω	
V 7	5U4GA	NC	85KΩ	NC	45Ω	NC	45Ω	NC	85KΩ	

NC- NO CONNECTION
TP - TIE POINT
† MEASURED FROM PIN 2 OF V7

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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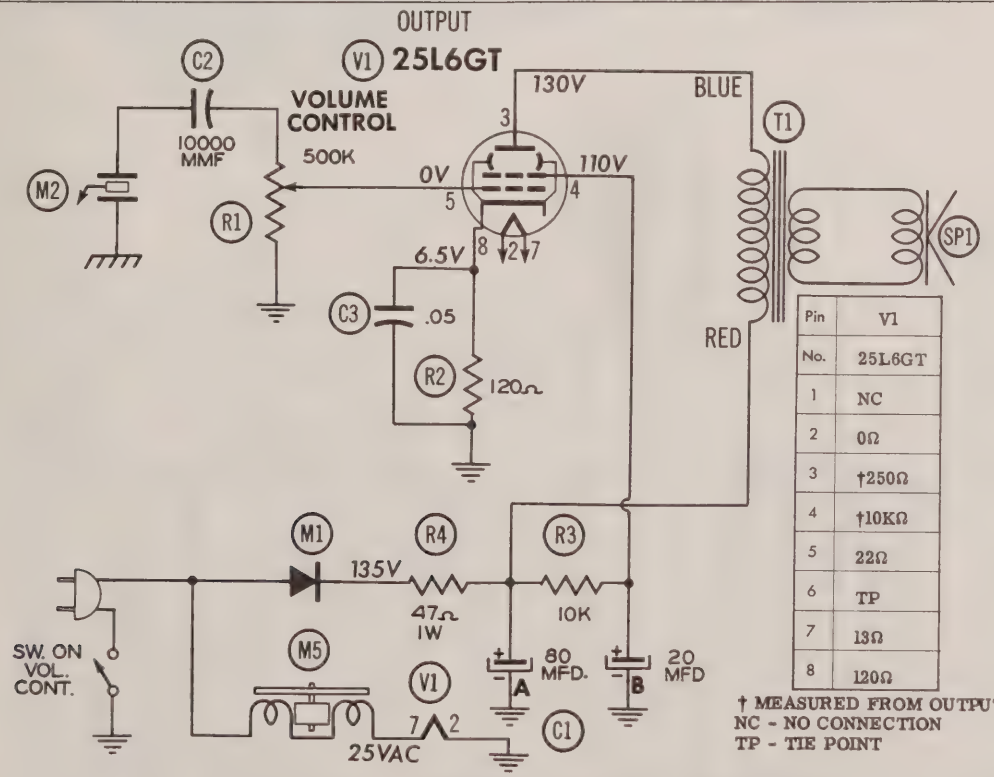
DENVER, COLORADO

PHILCO
MODEL C-1332 (Code 121)

PHILCO
MODEL C-1332 (Code 121)

TRADE NAME	Philco Model C-1332 (Code 121)
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	AC Operated Phono Amplifier With 3 Speed Manual Record Player
TUBES (One)	Type 25L6GT AF Amp.
POWER SUPPLY	110-120 Volts AC-60 Cycles — RATING .34 Amp. @ 117 Volts AC



Pin No.	V1 25L6GT
1	NC
2	0Ω
3	†250Ω
4	†10KΩ
5	22Ω
6	TP
7	13Ω
8	120Ω

† MEASURED FROM OUTPUT OF M1
NC - NO CONNECTION
TP - TIE POINT

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		PHILCO PART No.	STANDARD REPLACEMENT		
V1	Audio Output	25L6GT	25L6GT	7S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT	PHILCO PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	80	150	30-2575-42			TCT3116	TDL-8030-150	FMT-315	
B	20	150							
C2	10000		30-12382	DD-103	811-01	DC-511	IMP4-S1	C-06110	
C3	.05	400	30-4650-45	DF-503		PT415	IMP4-S5	330415	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	33-5566-63	Q13-133	A47-500K-Z	B-60-S	U-48	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWE-12	Not Req.	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	PHILCO PART No.	IRC PART No.	
R2	120Ω	½	66-1128340	BTS-120	
R3	10KΩ	½	66-3108340	BTS-10K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	PHILCO PART No.	IRC PART No.	
R4	47Ω	1	66-0474340		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	PHILCO PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	
T1	2.6KΩ	3.3Ω	Part of Spkr.	A-3332	A-3025	S-12X	Z1101	26S58	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	PHILCO PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.3Ω	36-1654-4	ST-113 Mod. P4-X	4A1	

SELENIUM RECTIFIER

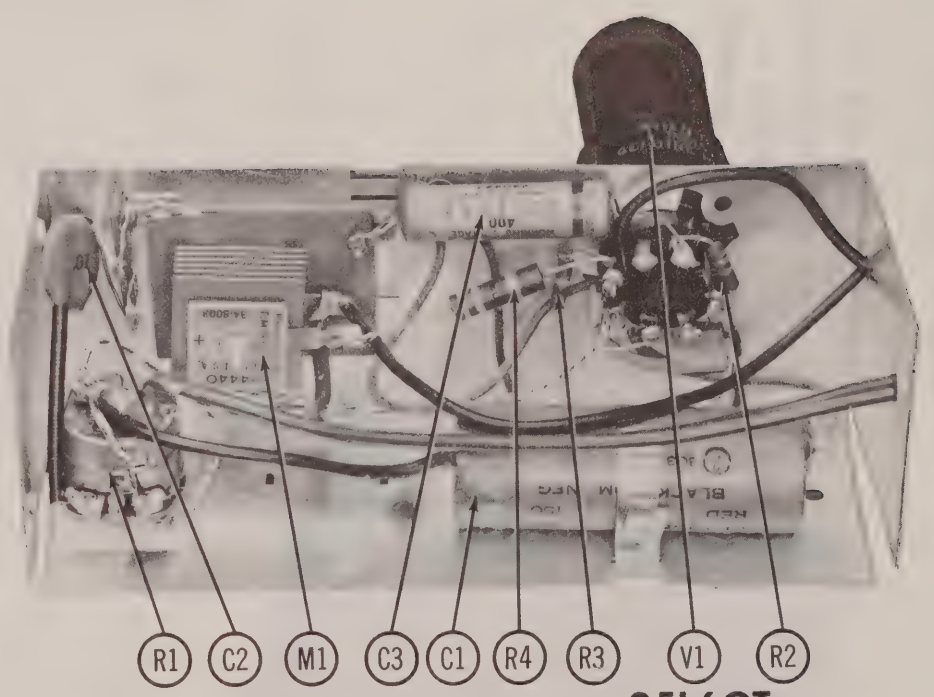
ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	PHILCO PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.049ADC	34-8003	1263A	RS65	6S65	8J1	65	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	PHILCO PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M2	425-0012	66-TY	K-1 K-3	*2460		* Complete tone arm and cartridge assembly.

ASTATIC NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENT SEE BELOW.

CHASSIS—BOTTOM VIEW



25L6GT

PARTS LIST AND DESCRIPTIONS (Continued)

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

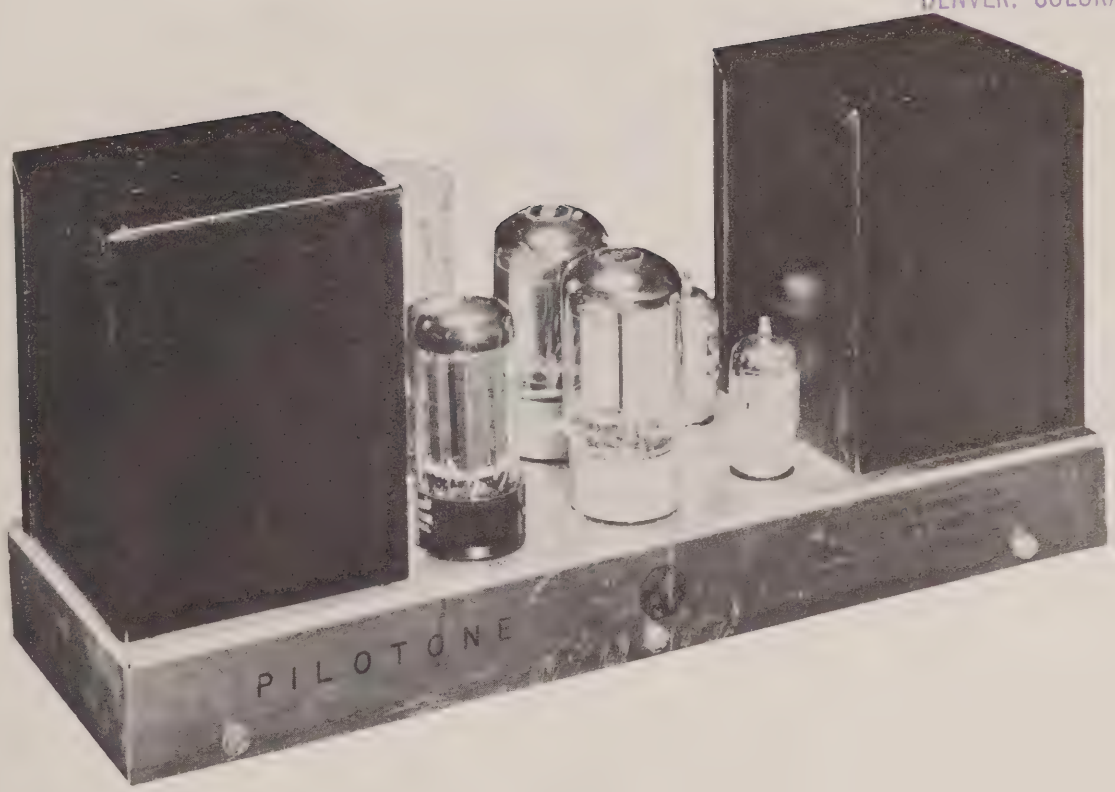
ITEM No.	REPLACEMENT DATA				REMARKS
	PHILCO PART No.	JENSEN PART No.	PERMO PART No.	WALCO PART No.	
M3	(325-0091) (78RPM Needle)	*A-76	*C-473	*W-39A	* Metal
M4	(325-0091-1) (33 1/3-45 Needle)	*A-76LP	*A-471	*W-39MGA	

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M5	Phono Motor	35-1515	
	Cabinet	11079	
	Handle	54-5210	Cabinet
	Knob	27-4815-13	On-off-volume
	Knob	76-9380	Crystal turnover

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

PILOT
MODEL AA-410



PILOT
MODEL AA-410

TRADE NAME	Pilot Model AA-410
MANUFACTURER	Pilot Radio Corp., 37-06 36th. St., Long Island City, N.Y.
TYPE SET	AC Operated 15 Watt Audio Amplifier
TUBES (Five)	Types 6C4 Preamp., 12AU7 AF Amp.-Phase Inverter, (2) 5881 Output, 5Y3GT Rectifier
POWER SUPPLY	105 -120 Volts AC-60 Cycles RATING .76 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		PILOT PART No.	STANDARD REPLACEMENT		
V1	Pre-amplifier	6C4	6C4	6BG	
V2	AF Amplifier-Phase Inverter	12AU7	12AU7	9A	
V3	Output	5881	5881	7S	
V4	Output	5881	5881	7S	
V5	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT	PILOT PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	▲20	450				FP448	TM-602020-450		
B	■60	450					TD-20-450		
C	▲20	450							
D	20	450							
C2	100	50				TC-3501	TD-100-50	MTH-5010	
C3	.1	600		DF-104		PT601	IMP6-P1	330601	
C4	.047	600		DF-503		PT6147	IMP6-S47	3306147	
C5	.047	600		DF-503		PT6147	IMP6-S47	3306147	

RESISTORS

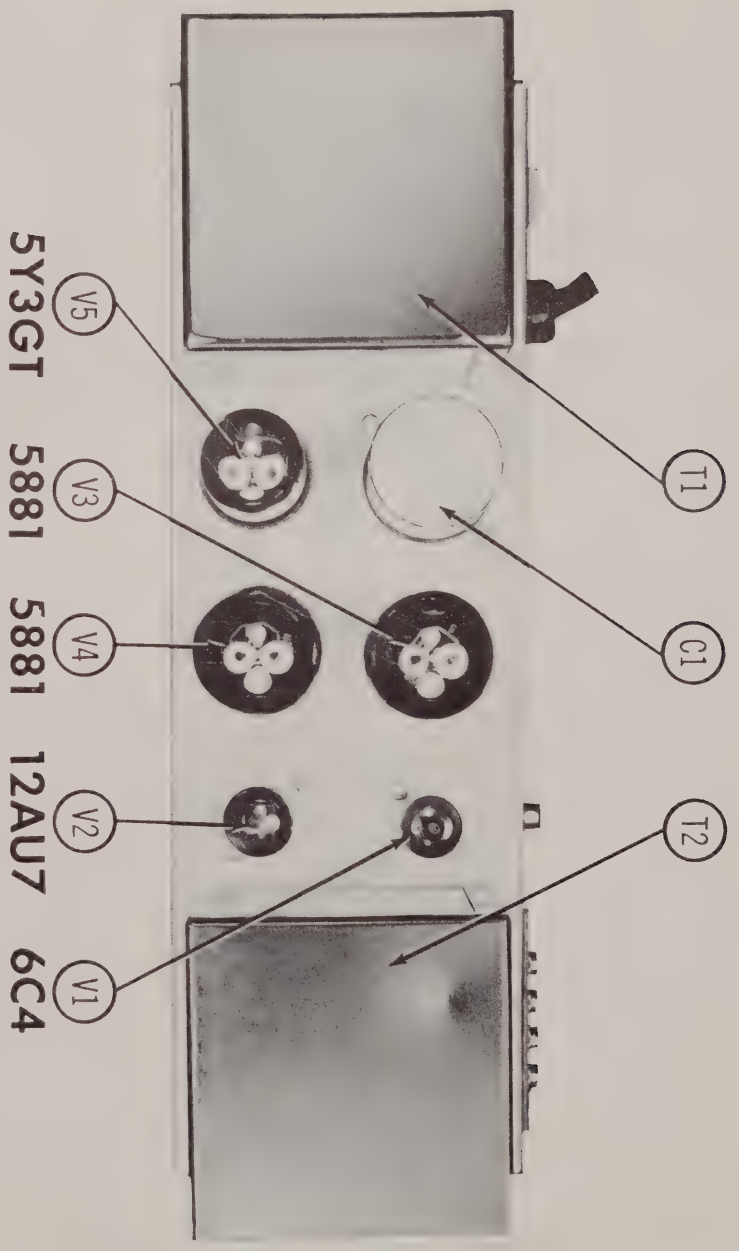
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	PILOT PART No.	IRC PART No.	
R1	470KΩ	½		BTS-470K	
R2	4700Ω	½		BTS-4700	
R3	100KΩ	½		BTS-100K	
R4	470KΩ	½		BTS-470K	
R5	10KΩ	½		BTS-10K	
R6	220KΩ	½		BTS-220K	
R7	47KΩ 5%	½		BTS-47K 5%	
R8	47KΩ 5%	½		BTS-47K 5%	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	PILOT PART No.	IRC PART No.	
R9	470KΩ	½		BTS-470K	
R10	250Ω	4		PW4-250	
R11	470KΩ	½		BTS-470K	
R12	6800Ω	½		BTS-6800	
R13	12KΩ	2		BTB-12K	
R14	10KΩ	2		BTB-10K	
R15	10KΩ	½		BTS-10K	
R16	100Ω	5		1 3/4A-100	

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	PILOT PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC @.76A	750VCT .108ADC	5VAC @ 2A	6.3VCT @2.3A	55-44					

CHASSIS—TOP VIEW

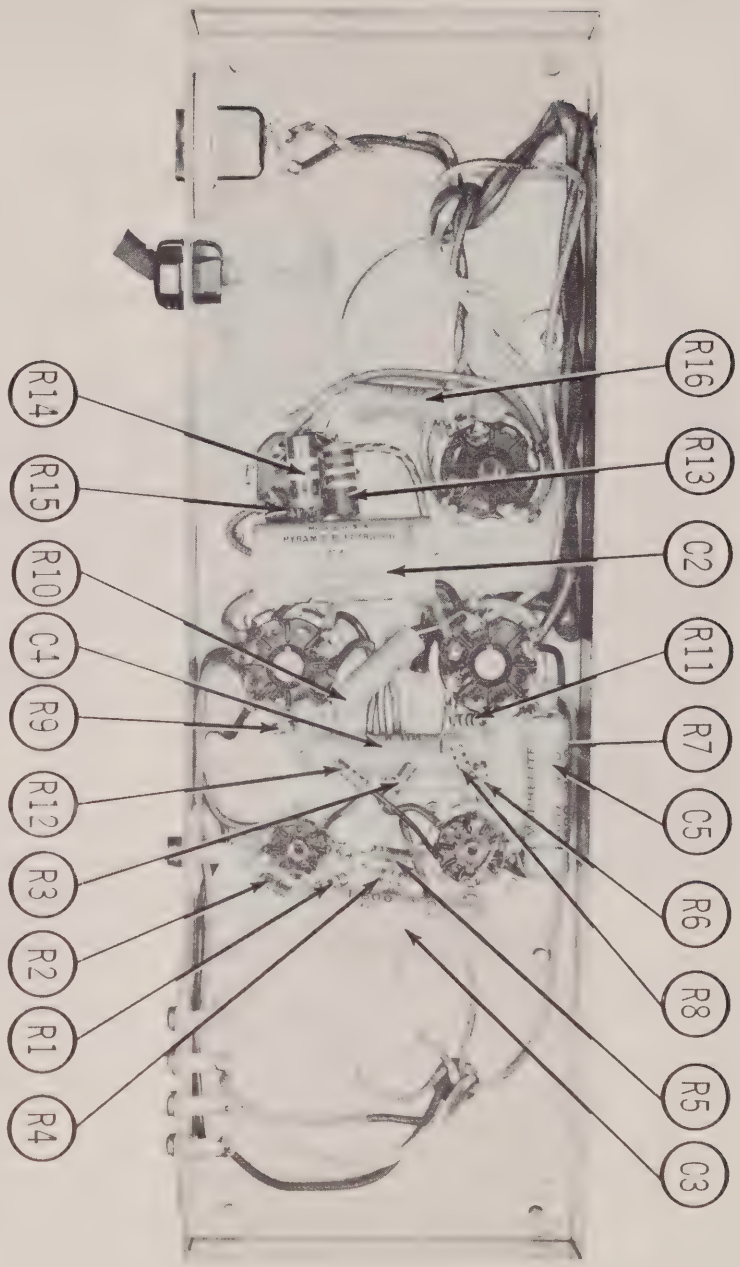


PARTS LIST AND DESCRIPTIONS (Continued)

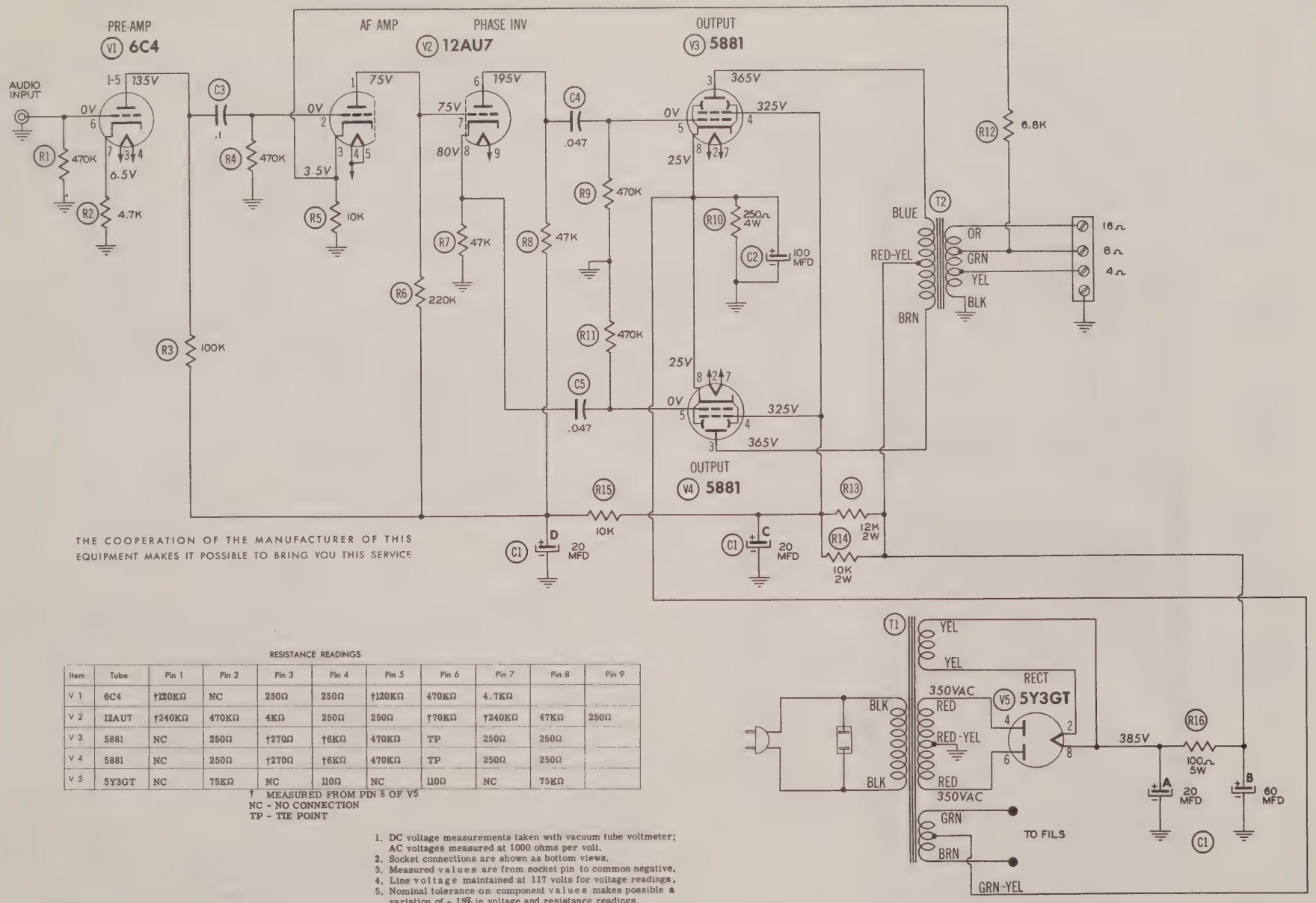
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	PILOT PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	
T2	7.6KΩ CT	16Ω tap ⓐ 8Ω, 4Ω	56-43						

CHASSIS—BOTTOM VIEW



PILOT
MODEL AA-410



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6C4	†120KΩ	NC	250Ω	250Ω	†120KΩ	470KΩ	4.7KΩ		
V 2	12AU7	†240KΩ	470KΩ	4KΩ	250Ω	250Ω	†70KΩ	†240KΩ	47KΩ	250Ω
V 3	5881	NC	250Ω	†270Ω	†6KΩ	470KΩ	TP	250Ω	250Ω	
V 4	5881	NC	250Ω	†270Ω	†6KΩ	470KΩ	TP	250Ω	250Ω	
V 5	5Y3GT	NC	75KΩ	NC	110Ω	NC	110Ω	NC	75KΩ	

† MEASURED FROM PIN 8 OF V5
NC - NO CONNECTION
TP - TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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275-11

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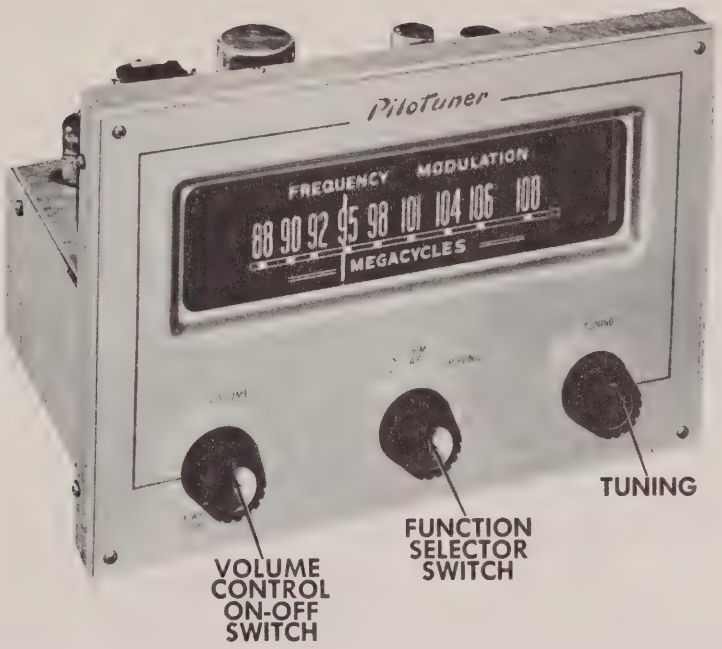
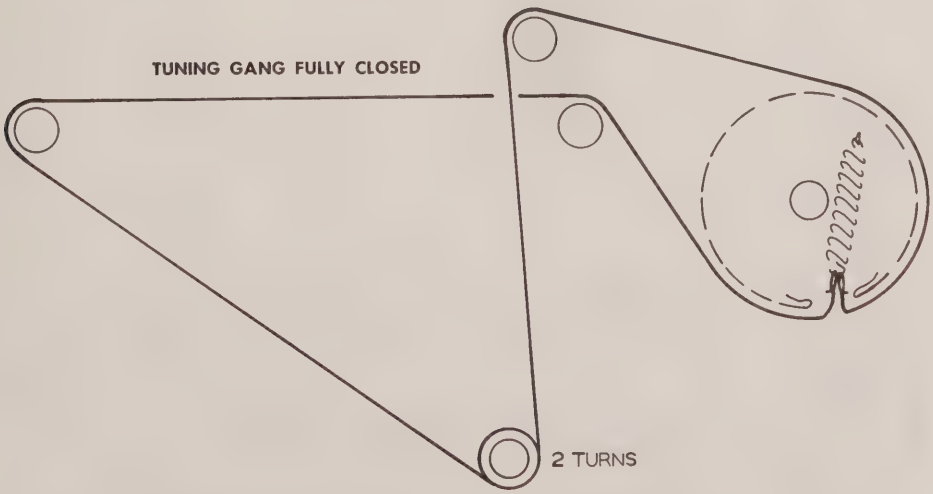
PILOT
MODEL FM-607



TRADE NAME	Pilot Model FM-607
MANUFACTURER	Pilot Radio Corp., 37-06 36th St., Long Island City, N. Y.
TYPE SET	AC Operated FM Superheterodyne Tuner
TUBES (Eight)	Types 6BA6 RF Amp., 6AB4 AFC, 6U8 Osc.-Mixer, 6BA6 IF Amp., 6AU6 IF Amp., 6AL5 Ratio Det., 12AU7 AF Amp-Cathode Follower, 6X4 Rectifier
POWER SUPPLY	105-120 Volts AC - 60 Cycles RATING .17 Amp. @ 117 Volts AC
TUNING RANGE - FM	88MC - 108MC

PILOT
MODEL FM-607



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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		PILOT PART No.	STANDARD REPLACEMENT		
V1	RF Amp.	6BA6	6BA6	7BK	
V2	AFC	6AB4	6AB4	5CE	
V3	Mixer-Osc.	6U8	6U8	9AE	
V4	IF Amp.	6BA6	6BA6	7BK	
V5	IF Amp.	6AU6	6AU6	7BK	
V6	Ratio Det.	6AL5	6AL5	6BT	
V7	AF Amp. - Cathode Follower	12AU7	12AU7	9A	
V8	Rectifier	6X4	6X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

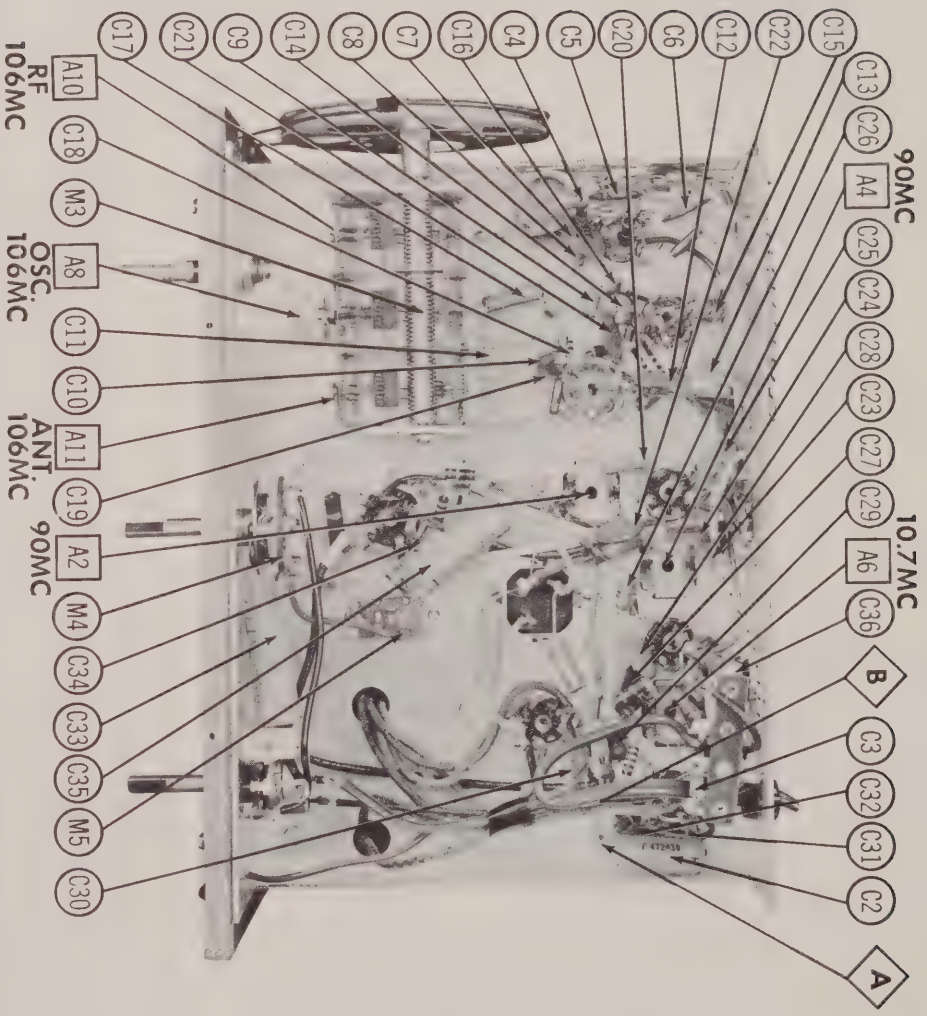
ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT	PILOT PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	▲40	300	24-123			FP375.5	TM-806060-350	Q-012	
B	■80	250							
C	▲40	250							
C2	2	50	24-82			TC302	TD-2-50	MMT-0505	
C3	30	1000							
C4	50			D6-500	GP1K-500	UC-545			
C5	10000			D6-103	801-01	DC511			
C6	10000			D6-103	801-01	DC511			
C7	10000			D6-103	801-01	DC511			
C8	50			D6-500	GP1K-500	UC-545			Note 1
C9	50			D6-500	GP1K-500	UC-545			
C10	50			D6-500	GP1K-500	UC-545			
C11	1.2								
C12	10000			D6-103	801-01	DC511			
C13	100			D6-101	GP1K-101	UC-531			
C14	500			D6-501	GP2K-501	UC-535			
C15	800			D6-820	811-821				
C16	10								
C17	100			D6-101	GP1K-101	UC-531			
C18	30				N750K-300				
C19	800			D6-820	811-821				
C20	1500			D6-152	GP2L-152	DC5215			
C21	10000			D6-103	801-01	DC511			
C22	10000			D6-103	801-01	DC511			
C23	1500			D6-152	GP2L-152	DC5215			
C24	10000			D6-103	801-01	DC511			
C25	10000			D6-103	801-01	DC511			
C26	500			D6-501	GP2K-501	UC-535			
C27	10000			D6-103	801-01	DC511			
C28	1500			D6-152	GP2L-152	DC5215			
C29	500			D6-501	GP2K-501	UC-535			
C30	1500			D6-152	GP2L-152	DC5215			
C31	100			D6-101	GP1K-101	UC-531			
C32	100			D6-101	GP1K-101	UC-531			
C33	.1	400		DF-104		PT401	IMP4-S1	330401	
C34	.01	400		D6-103	811-01	PT411	IMP4-P1	330411	
C35	.1	400		DF-104		PT401	IMP4-S1	330401	
C36	.01	400		D6-103	811-01	PT411	IMP4-P1	330411	

Note 1: Some versions may use a 30MMF capacitor in this application.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PILOT PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	1Meg	½	36-48	Q13-137	A47-1Meg-Z	B-70-S	U-53	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWE-12	Not Req.	US-26	Attach to R1A

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA PILOT PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R2	270KΩ	½		BTS-270K	
R3	5600Ω	½		BTS-5600	
R4	470Ω	½		BTS-470	
R5	470KΩ	½		BTS-470K	
R6	1MΩ	½		BTS-1M	
R7	270Ω	½		BTS-270	
R8	27KΩ	1		BTA-27K	
R9	6800Ω	½		BTS-6800	
R10	6800Ω	1		BTS-6800	
R11	1Meg	½		BTS-1Meg	
R12	5600Ω	½		BTS-5600	
R13	1000Ω	½		BTS-1000	
R14	270KΩ	½		BTS-270K	
R15	5600Ω	1		BTA-5600	
R16	1000Ω	½		BTS-1000	
R17	1Meg	½		BTS-1Meg	
R18	100KΩ	1		BTS-100K	
R19	5600Ω	½		BTS-5600	
R20	1000Ω	½		BTS-1000	
R21	39KΩ	½		BTS-39K	
R22	1Meg	½		BTS-1Meg	
R23	10KΩ 5%	½		BTS-10K 5%	
R24	10KΩ 5%	½		BTS-10K 5%	
R25	2200Ω	½		BTS-2200	
R26	1500Ω	1		BTA-1500	
R27	39KΩ	½		BTS-39K	
R28	470KΩ	½		BTS-470K	
R29	470Ω	½		BTS-470	
R30	10KΩ	½		BTS-10K	
R31	470KΩ	½		BTS-470K	
R32	5600Ω	1		BTA-5600	
R33	400Ω	4			

TRANSFORMER (POWER)

ITEM No	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA PILOT PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC @ .17A	300VCT .064A	⑥ 6.3VAC ⑤ 3.05A		55-39					

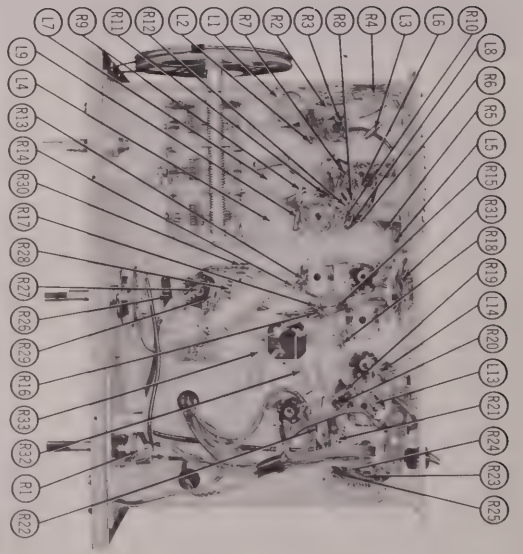
COILS (RF-IF)

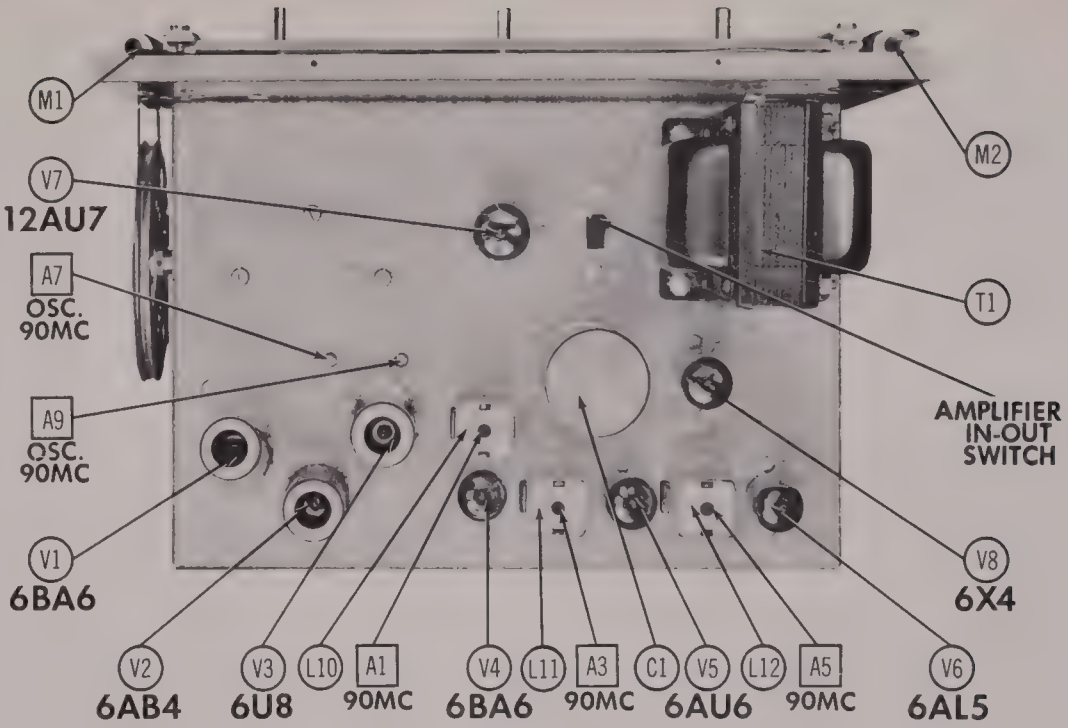
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA PILOT PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	FM Ant. Coil	0Ω	0Ω*	70-78				*Tapped
L2	Cathode Choke	1Ω		75-33	19-1004		4529	5 Microhenries
L3	RF Choke	1Ω		75-33	19-1004		4529	5 Microhenries
L4	FM RF Coil	0Ω		71-39				
L5	Fil. Choke	0Ω		75-19	19-1001		4804	1.6 Microhenries
L6	RF Choke	1Ω		75-33	19-1004		4529	5 Microhenries
L7	FM Osc. Coil	0Ω		72-74				
L8	Fil. Choke	0Ω		75-19	19-1001		4804	1.6 Microhenries
L9	Cathode Choke	1Ω		75-33	19-1004		4529	5 Microhenries
L10	1st FM IF	.6Ω	.6Ω	273-151	16-3467	FM-253	1463	
L11	2nd FM IF	.6Ω	.6Ω	273-151	16-3467	FM-253	1463	
L12	Ratio Det.	1.5Ω	.9ΩCT	279-73	17-3497	FM-255	1468	Tertiary winding = .25Ω
L13	Line Choke	0Ω		75-19	19-1001		4804	1.6 Microhenries
L14	Line Choke	0Ω		75-19	19-1001		4804	1.6 Microhenries

MISCELLANEOUS

ITEM No.	PART NAME	PILOT PART No.	NOTES
M1	Dial Light		#47, Bayonet
M2	Dial Light		#47, Bayonet
M3	Tuning Cap.	26-58	3 Gang
M4	Switch		Selectory (Rotary-wafer type)
M5	Switch		Amplifier (In-Out) Slide Type SPDT

CHASSIS—BOTTOM VIEW




M1
V7
12AU7
A7
OSC.
90MC
A9
OSC.
90MC
V1
6BA6
M2
T1
AMPLIFIER
IN-OUT
SWITCH
V8
6X4
V2
6AB4
V3
6U8
L10
A1
90MC
V4
6BA6
L11
A3
90MC
C1
V5
6AU6
L12
A5
90MC
V6
6AL5

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
AFC is turned off throughout alignment.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	270Ω carbon resistor	High side to antenna terminal. Low side to chassis.	90MC	FM	90MC	DC probe to point A. Common to chassis.	A1, A2, A3, A4, A5	Adjust for maximum deflection.
2.	.1MFD	High side to pin 2 (grid) of 6U8 (V3). Low side to chassis.	10.7MC	"	"	DC probe to point B. Common to chassis.	A6	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	270Ω carbon resistor.	High side to antenna terminal. Low side to chassis.	90MC (300KC Swp)	FM	90MC	Vert. amp. to point A. Low side to chassis.	A1, A2, A3, A4, A5	Disconnect stabilizing capacitor (C2). Adjust for curve of maximum amplitude and symmetry with 10.7MC occuring at center of response curve similar to Fig. 1.
	Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.							
2.	.1MFD	High side to pin 2 (grid) of 6U8 (V3). Low side to chassis.	10.7MC	FM	90MC	Vert. amp. to point B. Low side to chassis.	A6	Reconnect stabilizing capacitor (C2). Adjust so that 10.7MC falls at the center of the crossover lines similar to Fig. 2. Retouch A5 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
3	270Ω carbon resistor	High side to antenna terminal. Low side to chassis.	90MC	FM	90MC	DC probe to point A. Common to chassis.	A7	Adjust for maximum deflection.
4	"	"	106MC	"	106MC	"	A8	"
5	"	"	90MC	"	90MC	"	A9	"
6	"	"	"	"	"	"	L1	Adjust by expanding or compressing L1 while rocking tuning gang.
7	"	"	106MC	"	106MC	"	A10, A11	Adjust for maximum deflection while rocking tuning gang.

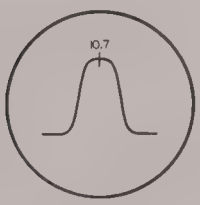


FIG. 1

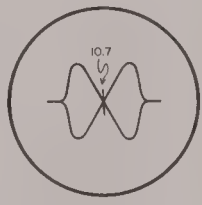
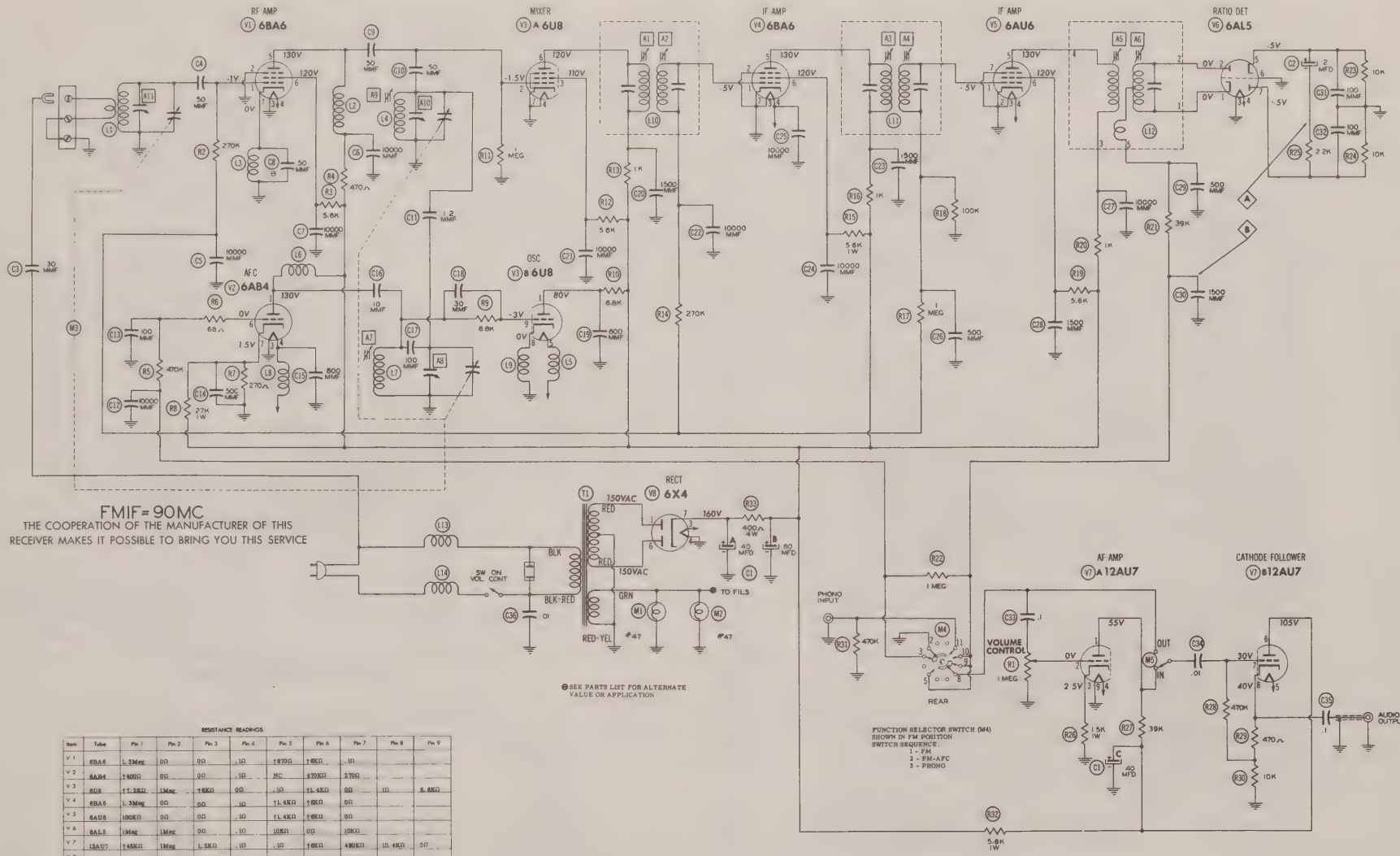


FIG. 2



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BA6	1.3Meg	0Ω	0Ω	.1Ω	†870Ω	†68KΩ	.1Ω		
V 2	6AB4	†400Ω	0Ω	0Ω	.1Ω	MC	470KΩ	270Ω		
V 3	6U8	†7.2KΩ	1Meg	†6KΩ	0Ω	.1Ω	†1.4KΩ	0Ω	1Ω	6.8KΩ
V 4	6BA6	1.3Meg	0Ω	0Ω	.1Ω	†1.4KΩ	†68KΩ	0Ω		
V 5	6AU6	100KΩ	0Ω	0Ω	.1Ω	†1.4KΩ	†68KΩ	0Ω		
V 6	6AL5	1Meg	1Meg	0Ω	.1Ω	10KΩ	0Ω	10KΩ		
V 7	12AU7	†45KΩ	1Meg	1.5KΩ	.1Ω	.1Ω	†68KΩ	480KΩ	10.4KΩ	0Ω
V 8	6X4	100Ω	MC	.1Ω	0Ω	TP	100Ω	25KΩ		

† MEASURED FROM PIN 7 OF V8.
ALL MEASUREMENTS TAKEN WITH SELECTOR SWITCH IN FM POSITION UNLESS OTHERWISE SPECIFIED.
MC - NO CONNECTION
TP - TIE POINT

1. DC voltage measurements taken with vacuum-tube voltmeter. AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings

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RCA VICTOR
MODEL 45-HY-4 (Ch. RS-140B)

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L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

RCA VICTOR
MODEL 45-HY-4 (Ch. RS-140B)

RCA VICTOR
MODEL 45-HY-4 (Ch. RS-140B)

TRADE NAME	RCA Victor Model 45-HY-4 (Ch. RS-140B)
MANUFACTURER	RCA Victor Radio & "Victrola" Div., Radio Corp. of America, Camden, N. J.
TYPE SET	AC Operated Phono Amplifier With 45RPM Automatic Record Changer
TUBES (Four)	Types 12AX7 AF Amp-Phase Inverter, (2) 35C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC - 60 Cycles RATING . 27 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER UNIT SEE RCA MODEL RP-190 SERIES - PHOTOFACT SET #144 - FOLDER #7 OR RECORD CHANGER MANUAL CM-4.

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PARTS LIST AND DESCRIPTIONS

RCA VICTOR
MODEL 45-HY-4 (Ch. RS-140B)

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: RCA Victor PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	AF Amp. - Phase Inverter	12AX7	12AX7	9A	
V2	Output	35C5	35C5	7CV	
V3	Output	35C5	35C5	7CV	
V4	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA Victor PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.
C1A	80	150	75980			TCD498	TDL-8050-150	FMT1540
B	50	150						
C2	5	50	74521			TC30	TD-5-50	FM1504
C3	680		79798	D6-681	GP2K-681	UC-5368		K-1368
C4	.047	400	73553	DF-503		PT4147	IMP4-S47	3304147
C5	.01	200	73561	DF-103	GP3-333-103	PT411	IMP4-S1	330211
C6	.033	200	79015			PT4133	IMP6-S3	3302133
C7	.0039	400	73796	D6-392	GP2-333-402	PT4239	IMP6-S4	3306239
C8	.0022	600	73595	D6-222	GP2-333-222	PT6222	IMP4-D22	3306222
C9	.01	400	73561	DF-103	GP2-333-103	PT411	IMP4-S1	330411
C10	.022	400	73562	DF-203		PT4122	IMP4-S22	3304122
C11	150		79797	D6-151	GP2K-151	UC-5315		K-1315
C12	.0022	600	73595	D6-222	GP2-333-222	PT6222	IMP6-D22	3306222
C13	.0022	600	73595	D6-222	GP2-333-222	PT6222	IMP6-D22	3306222
C14	.1	400	73551	DF-104		PT401	IMP4-P1	330401
C15	.047	400	73553	DF-503		PT4147	IMP4-S47	3304147

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA Victor PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1.5Meg	½	70342			ABT-167	UDT-291	Volume tapped at 550KΩ & 330KΩ
B	Shaft		Not Req.			AK-3	Not Req.	Attach to R1A
C	Switch		Not Req.			KB-1	US-26	Attach to R1A
R2	1Meg	½	79801					Tone - Note

Note: The element of this control is open in the middle 500KΩ on each side.

RESISTORS

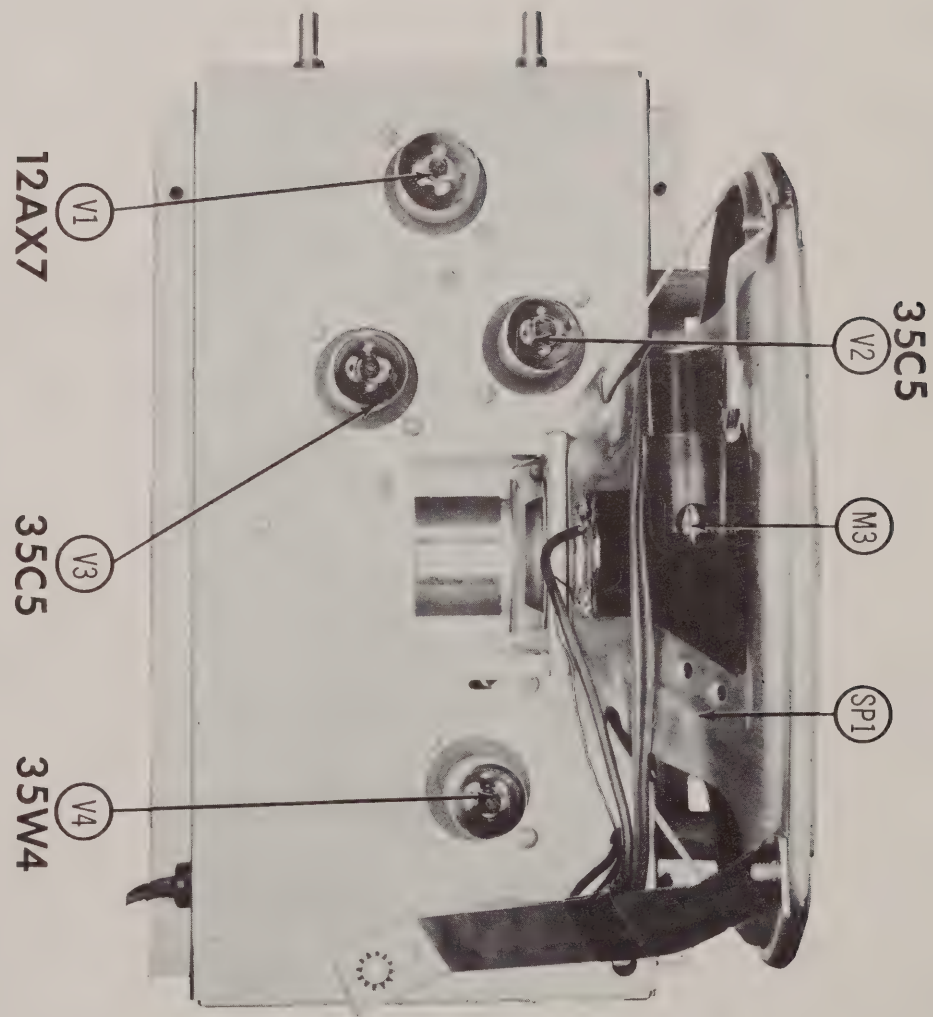
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: RCA Victor PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R3	120KΩ	½	502412	BTS-120K	
R4	12KΩ	½	502312	BTS-12K	
R5	3900Ω	½	502239	BTS-3900	
R6	220KΩ	½	502422	BTS-220K	
R7	12KΩ	½	502312	BTS-12K	
R8	220KΩ	½	502422	BTS-220K	
R9	470KΩ	½	502447	BTS-470K	
R10	82Ω	1	512082		

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: RCA Victor PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R11	180KΩ	½	502418	BTS-180K	
R12	12KΩ	½	502312	BTS-12K	
R13	12KΩ	½	502312	BTS-12K	
R14	470KΩ	½	502447	BTS-470K	
R15	100KΩ	½	502410	BTS-100K	
R16	1000Ω	1	512210	BTA-1000	
R17	33Ω	½	512003		
R18	150Ω	½	502115	BTS-150	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: RCA Victor PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T1	3.94KΩ CT	3.5Ω	79800	A-3823	A-2901	S-53X	Z1002	22S87	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	RCA Victor PART No.	JENSEN PART No.	QUAM PART No.	
SP1	8"	PM	3.5Ω	78805	ST-116 Mod. P8-U	8A21	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	RCA Victor PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	79791	51-1J	G-J			

ASTATIC NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENT SEE BELOW.

PHONO NEEDLE

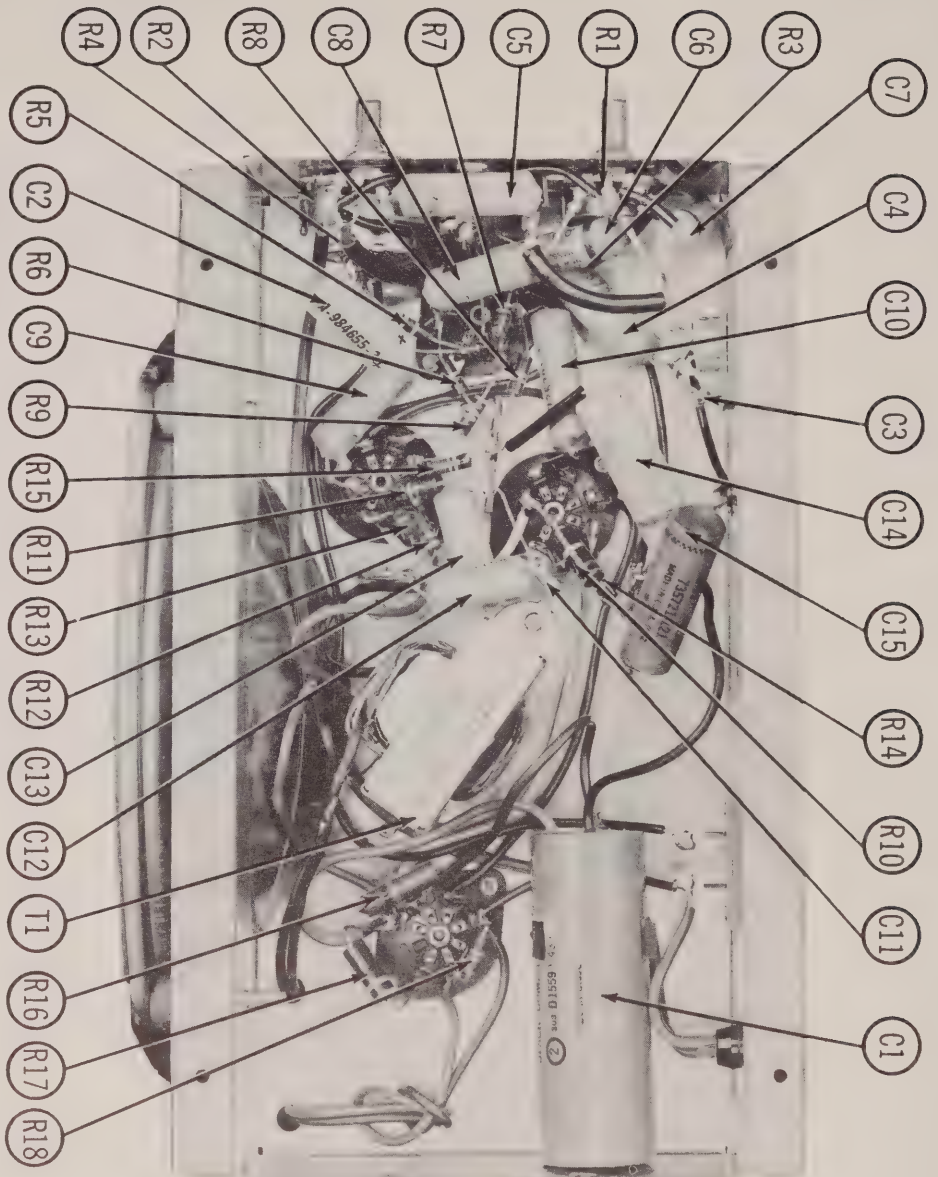
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA				REMARKS
	RCA Victor PART No.	JENSEN PART No.	PERMO PART No.	WALCO PART No.	
M2		*S-62LP or †S-63LP or ♦S-63LPD		†W-76MGS or ♦W-76MGD	* Metal † Jewel ♦ Diamond

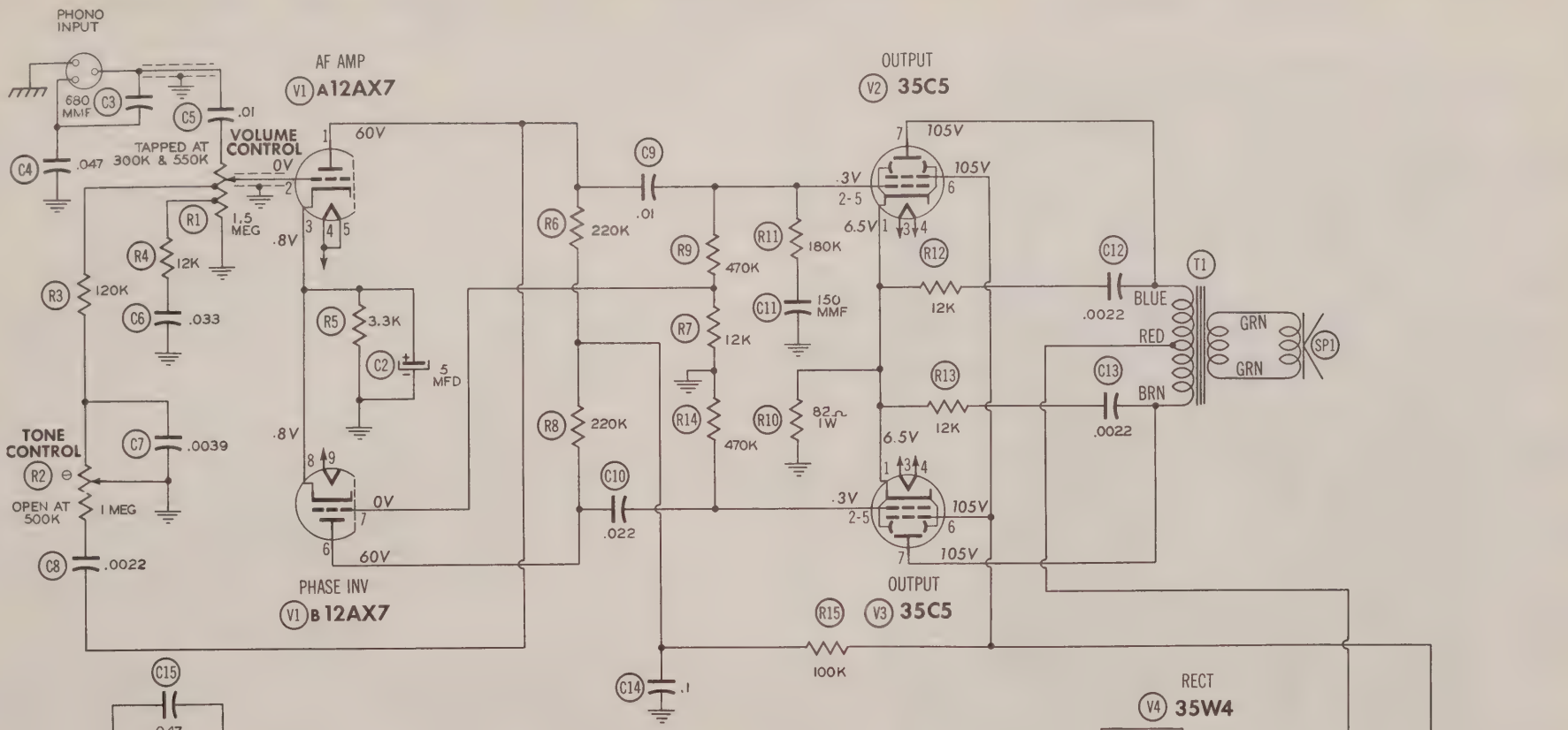
MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M3	Pilot Light	11891	#44, Bayonet
	Cabinet	76778	
	Knob	79802	On-Off-Volume & Tone
	Name Plate	77033	"RCA" Victor

CHASSIS—BOTTOM VIEW



RCA VICTOR MODEL 45-HY-4 (Ch. RS-140B)



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AX7	†320KΩ	10Ω	3.9KΩ	0Ω	12Ω	†320KΩ	1.2KΩ	3.9KΩ	6Ω
V 2	35C5	82Ω	480KΩ	12Ω	47Ω	480KΩ	†1KΩ	†200Ω		
V 3	35C5	82Ω	480KΩ	47Ω	82Ω	480KΩ	†1KΩ	†200Ω		
V 4	35W4	TP	TP	82Ω	117Ω	115Ω	115Ω	40KΩ		

† MEASURED FROM PIN 7 OF V4.
TP - TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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SENTINEL MODELS 1U-901,
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DATE 4–55 SET 275 FOLDER 14

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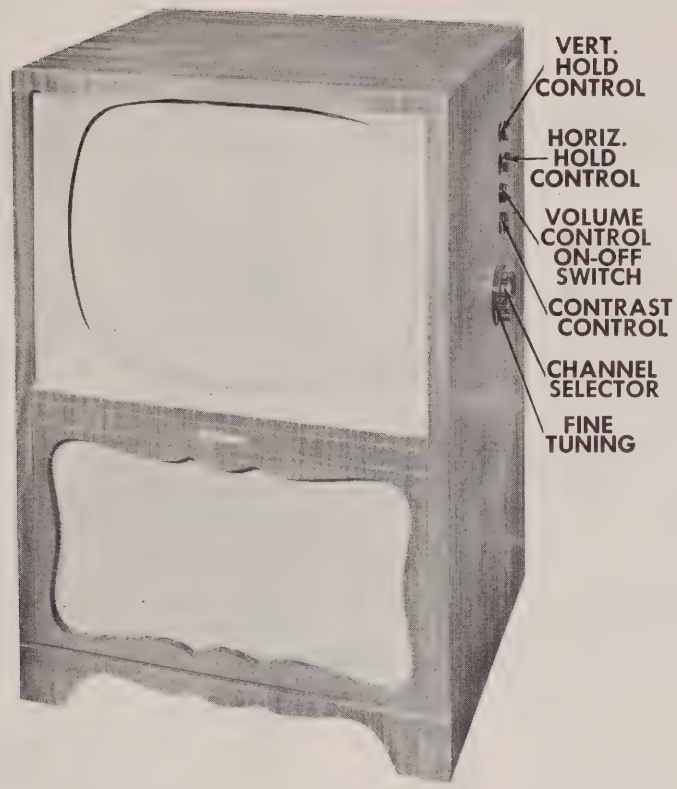

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SENTINEL MODEL 1U-914

TRADE NAME	Sentinel Model 1U-901, 1U-911, 1U-914, 1U-921, 1U-924, 1U-991
MANUFACTURER	Sentinel Radio Corp., 2100 W. Dempster, Evanston, Illinois
TYPE SET	Television Receiver
TUBES	Fifteen
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING 1.16 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83UHF, Video IF 26.4MC, Sound IF 21.9MC (Intercarrier)

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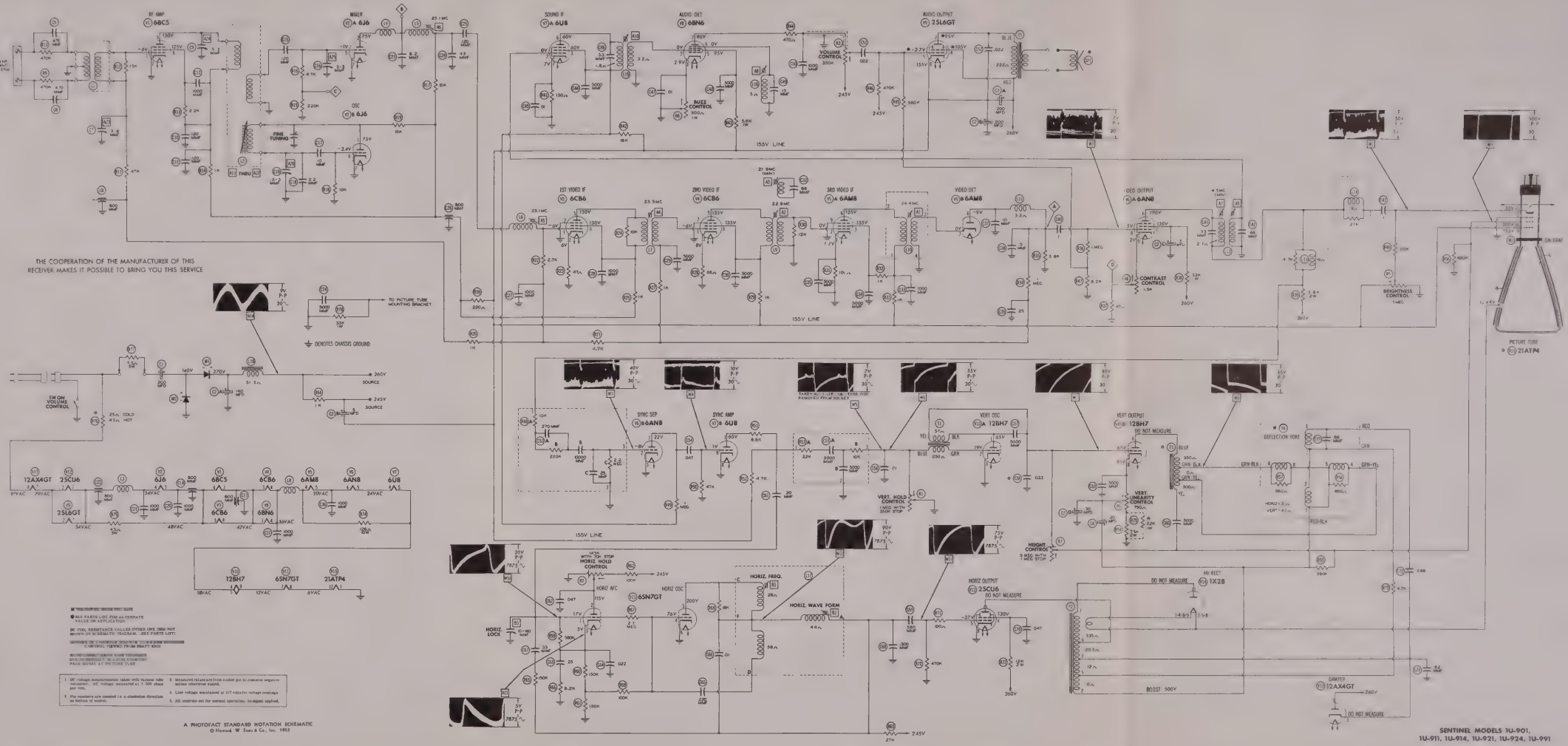
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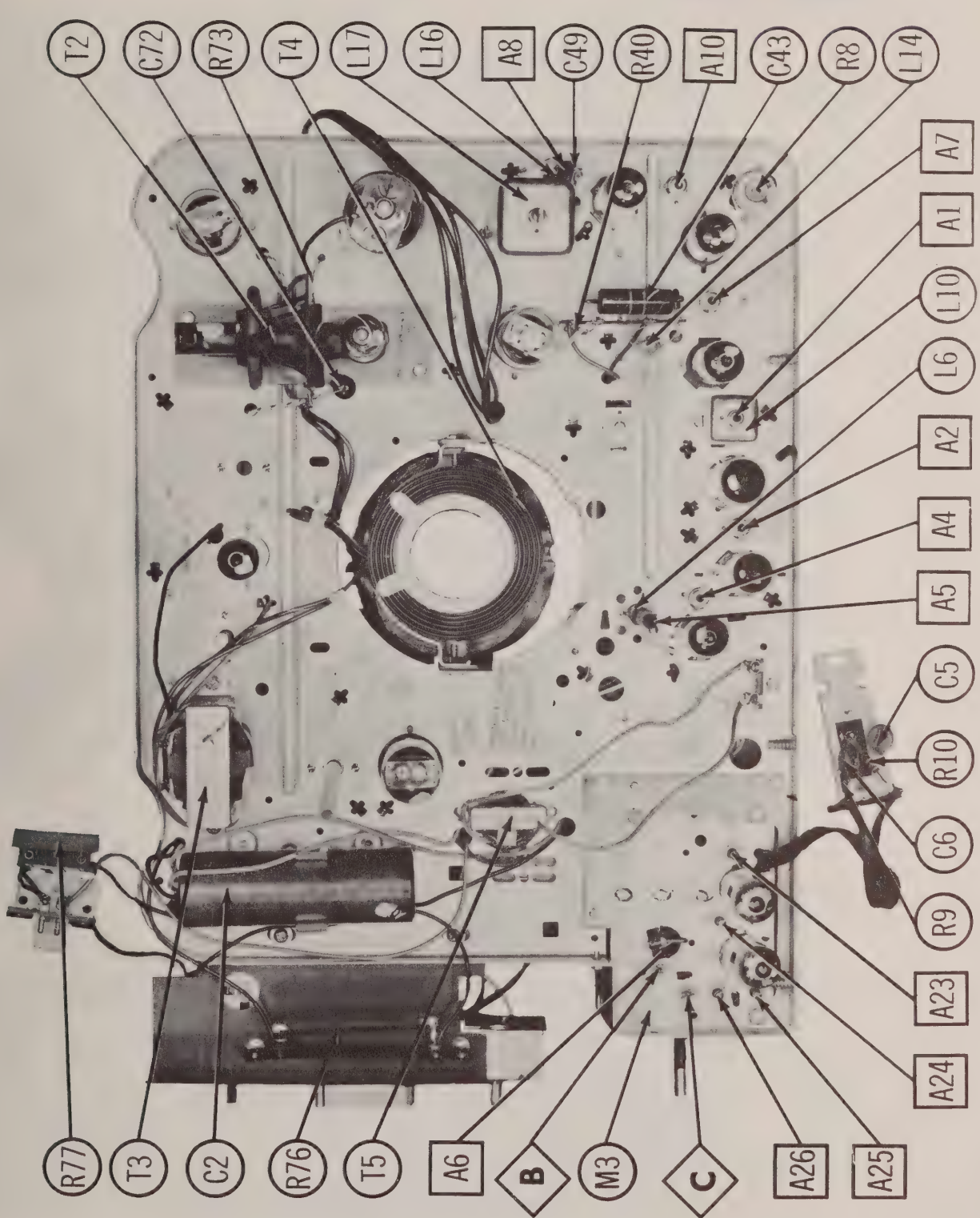

CHASSIS TOP VIEW

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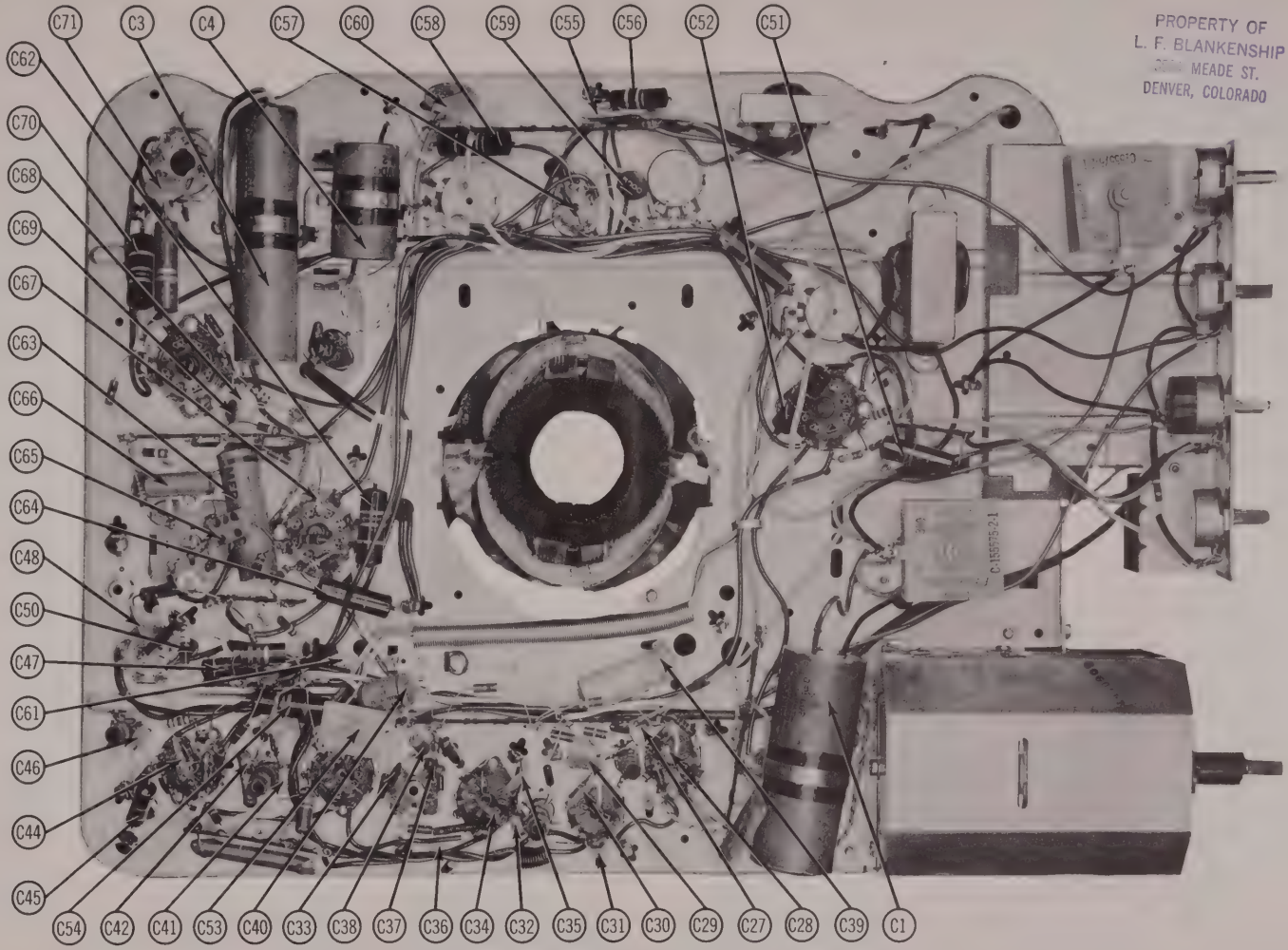

CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

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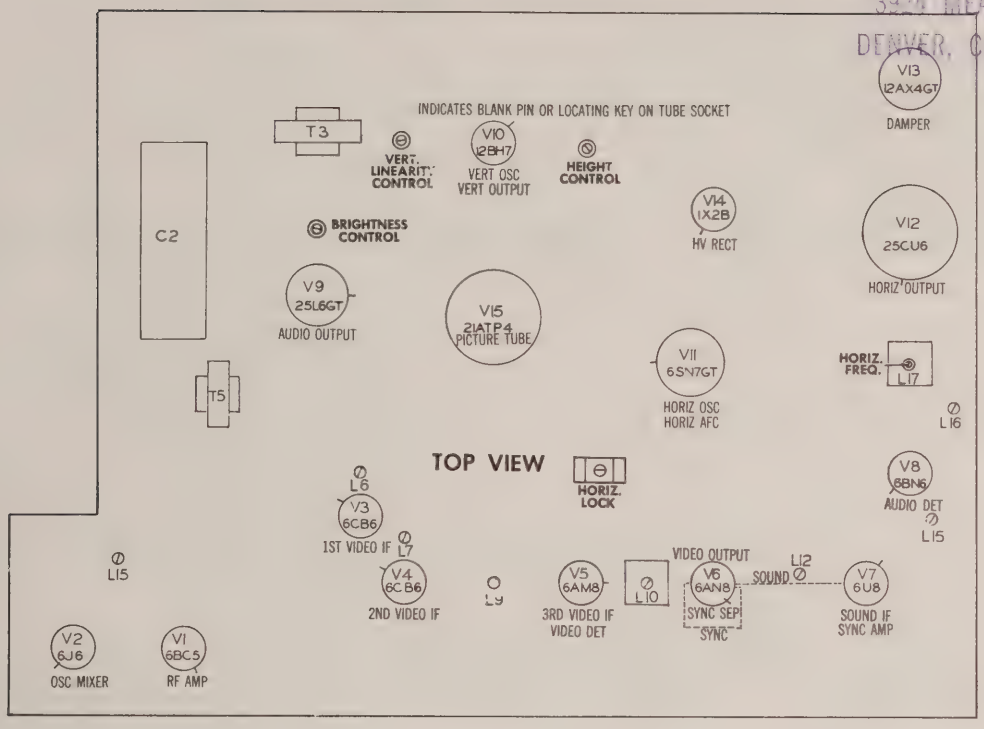
TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

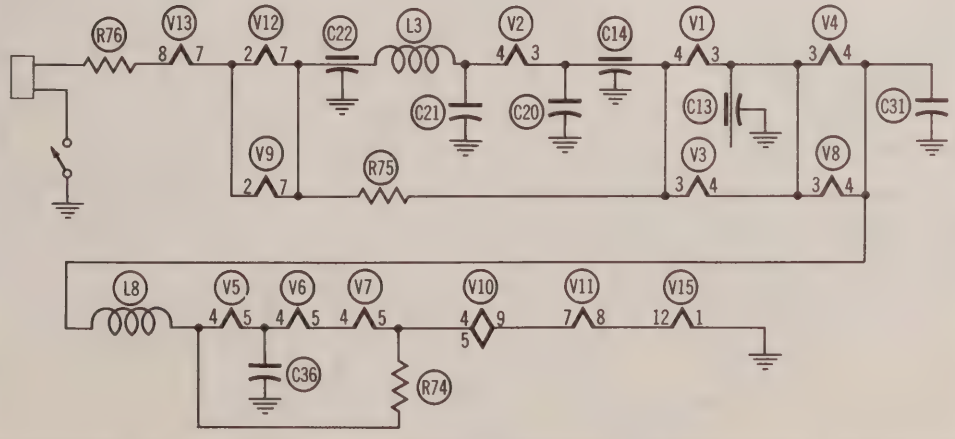
POWER SUPPLY FAILURE
No raster, no sound - **Selenium Rectifiers (M1 & M2)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V2, V3, V4, V5, V9**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V15**
Has pic, no sound - **V7, V8, V9**

SYNC FAILURE
No vert. sync - **V7, V10**
No horiz. sync - **V7, V11**
No vert. or horiz. sync - **V6, V7**

SWEEP FAILURE
No raster, has sound - **V11, V12, V13, V14, V15**
No vertical deflection - **V10**
Poor vert. linearity or foldover - **V10**
Poor horiz. linearity or foldover - **V11, V12, V13**
Narrow picture - **V11, V12, V13, V14, M1, M2**
Vert. off freq. - **V7, V10**
Horiz. off freq. - **V7, V11**

NOTE: Since this receiver employs tubes used in series-parallel filament network, an open filament in ay tube in series may cause the set to be inoperative. (See circuit below.)



ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use an isolation transformer to protect the test equipment.
NOTE: One side of the chassis is connected to the power line.
The high voltage lead should be taped and kept away from the chassis. Keep output from sweep and signal generator and contrast control low enough to prevent overloading of circuits.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt battery to the tuner AGC (white) lead. Positive lead to chassis.
Remove the converter tube (V2) from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Attenuate the generator output to maintain approximately - 2 volts on VTVM unless another value is specified.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1	.01MFD	High side to point Ⓑ. Low side to chassis.	24.4MC (unmod)	Any	DC probe to point Ⓐ. Common to chassis.	A1	Adjust for maximum deflection. Attenuate generator for reading of -1.5 volts on VTVM at peak reading.
2	"	"	22.9MC	"	"	A2	Adjust for maximum deflection. If two peaks occur, use the peak nearest clip end of the coil.
3	"	"	21.9MC	"	"	A3	Adjust for MINIMUM deflection. Use enough generator output to produce .5 volts deflection at minimum reading. Use the null obtained with the core nearest the clip end of the coil. Repeat steps 2 and 3.
4	"	"	25.5MC	"	"	A4	Adjust for maximum deflection.
5	"	"	25.1MC	"	"	A5	Adjust for maximum deflection. Use peak nearest clip end of coil.
6	"	High side to point Ⓒ. Low side to chassis.	25.1MC	"	"	A6	Shunt L6 with 100Ω resistor in series with .001MFD capacitor. Adjust A6 for maximum deflection.

OVERALL VIDEO IF RESPONSE CHECK

Leave bias connected as under "Video IF Alignment". Use only enough sweep generator and marker output to provide useable indication on scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Set the contrast control for minimum contrast.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7	Direct	High side to an unground tube shield floating over dummy converter tube. Low side to chassis.	24MC (10MC Swp)	21.9MC 25.1MC 25.5MC 26.4MC	Any	Vert. amp. thru 10KΩ to point Ⓓ. Low side to chassis.		Check for response curve similar to Fig. 1. SLIGHTLY retouch A1 thru A6 to obtain desired response. If desired response cannot be obtained with slight retouching of A1 thru A6, steps 1 thru 6 should be repeated. Replace original 6J6 in its socket.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8	.01MFD	High side to pin 11 (cathode) of picture tube. Low side to chassis.	Not used.	4.5MC	Any non-interfering channel.	Use VTVM. Connect across secondary of T5.	A7	Adjust for MINIMUM deflection on VTVM.

SOUND IF ALIGNMENT USING ON THE AIR SIGNAL

Turn the set on and tune in a strong TV signal. Turn the buzz control (R8) 90° maximum from clockwise rotation. Adjust A8 for maximum volume. Reduce the signal strength. (Remove the antenna from antenna terminals and stray feed the signal by placing antenna near antenna terminals.) Adjust A9 and A10 for maximum volume. Adjust R8 for minimum noise. Reconnect antenna and readjust A8 for maximum volume. If necessary, reduce volume so this peak can be heard.

ALTERNATE SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR, AM SIGNAL GENERATOR AND OSCILLOSCOPE

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Set volume control at a low volume level.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9	.01MFD	High side to pin 8 (grid) of 6AN8 (V6A). Low side to chassis.	4.5MC (400∿ Mod) (50KC Swp)	4.5MC	Any non-interfering channel.	Across secondary of T5.	A8	Set buzz control (R8) 90 degrees from maximum clockwise rotation. Adjust A8 for maximum 400∿ indication on scope.
10	"	"	"	"	"	"	A10 A9	Attenuate generator output so that signal is below the limiting level of the 6BN6 as evidenced by background hiss and noise. Adjust A10 and A9 for maximum 400∿ response on scope.
11	"	"	"	4.5MC (400∿ Mod)	"	"	R8	Use a high generator output and adjust R8 for MINIMUM 400∿ indication on scope.
12	"	"	"	4.5MC	"	"	A8	With volume control at low level, retouch A8 for maximum 400∿ indication on scope.

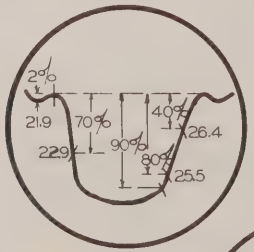


FIG. 1

FIG. 2

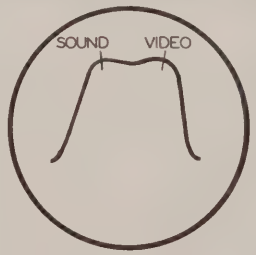


FIG. 3

FIG. 4

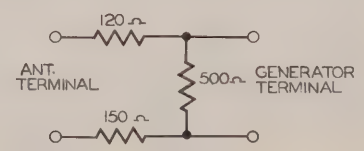


FIG. 5

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ALIGNMENT INSTRUCTIONS (cont)

OSCILLATOR ALIGNMENT

The channel oscillator adjustment screws are reached through a hole just below the channel switch shaft. The correct adjustment screws are accessible through this hole as the channel switch is turned to each channel.
Remove the dummy converter tube and replace the original 6J6 in its socket. Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels, it may be possible to correct them in one step using A26 adjustment. It should be noted that this is an all channel oscillator circuit adjustment and should not be used to correct any individual channel. If adjustment of A26 will not bring all channels within range of the fine tuning control, it will be necessary to adjust the channel strip adjustment screw for each channel that is off frequency. Connect bias as in "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13	Two 130Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp. thru 10KΩ to point (A). Low side to chassis.	A11	Adjust to place sound marker in trap notch as in Fig. 2. Video marker should be at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A12	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A13	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A14	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A15	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A16	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A17	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A18	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A19	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A20	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A21	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A22	

RF AND MIXER ALIGNMENT

Connect bias as under "Oscillator Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to point (C). Low side to chassis.	A23, A24, A25	Adjust for response similar to Fig. 3.
15	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response similar to Fig. 3. If markers fall below 70% on any channel, make slight compromise adjustment of A23, A24 and A25 with channel switch set to that channel. Recheck all other channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

UHF TUNER ALIGNMENT

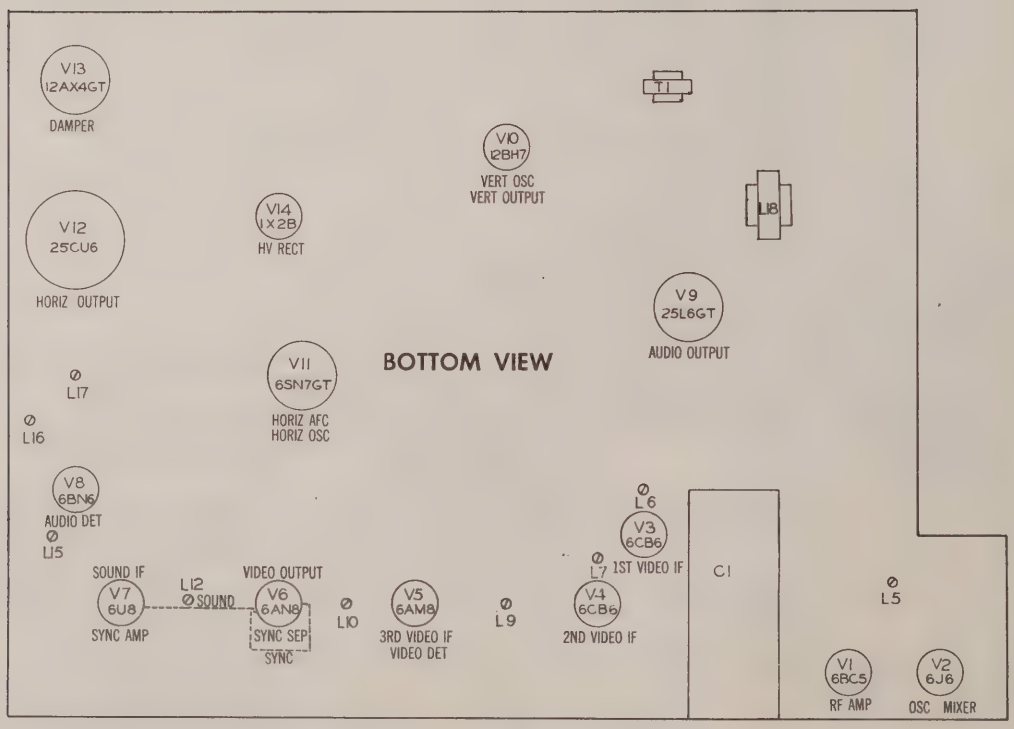
Turn the VHF tuner to channel 5 or 6 and set VHF-UHF switch to UHF position.
Detune L5 by turning seven turns counter clockwise.
Remove dial cord and mounting screws from UHF tuner.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
16	Fig. 5	Across UHF antenna terminals thru (Fig. 5) matching pad.	460MC (20MC Swp)	460MC	5 or 6	Vert. amp. thru 10KΩ to point (C) on VHF tuner. Low side to chassis.	A27	Rotate UHF tuner dial fully counter clockwise. Adjust A27 to place 460MC marker in center of response curve Fig. 4.
17	"	"	910MC (20MC Swp)	910MC	5 or 6	"		Rotate UHF tuner dial fully clockwise. Move by bending oscillator end inductor ribbon connected to adjustment A27 to place 910MC marker in center of response curve Fig. 4.
18	"	"	460MC (20MC Swp)	460MC	"	"	A28, A29	Rotate UHF tuner dial fully counter clockwise. Adjust for maximum response and minimum tilt.
19	"	"	910MC	910MC	"	"		Rotate UHF tuner dial fully clockwise. Move by bending the antenna and mixer end inductor ribbons connected to A28, and A29 for maximum response and minimum tilt. Return coil adjustment slug (L5) to its position before starting UHF tuner alignment. Turn L5 clockwise seven turns.

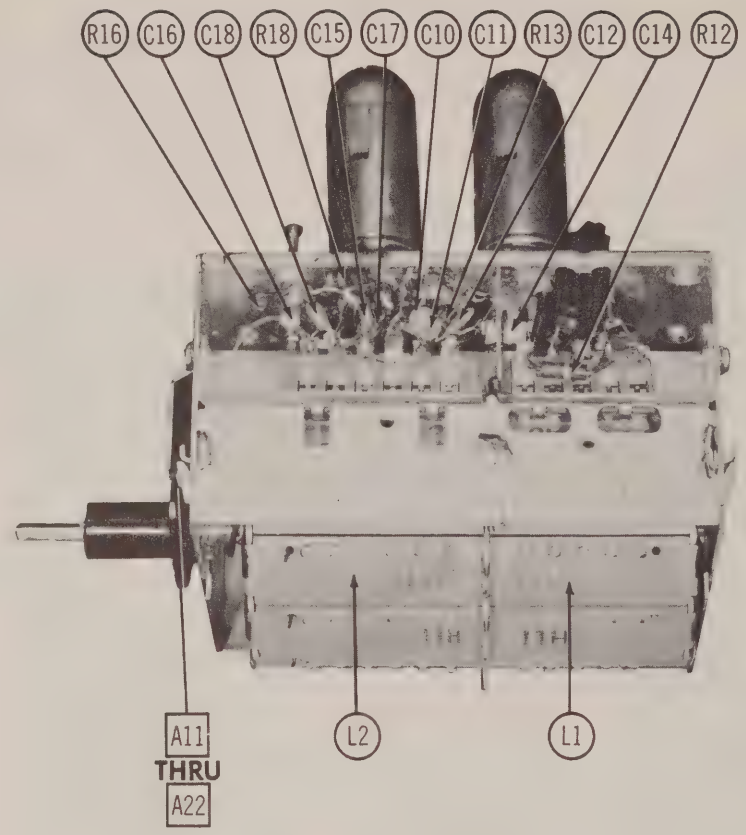
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	1Meg	0Ω	12Ω	14Ω	■1.2KΩ	■3.4KΩ	0Ω		
V 2	6J6	■15KΩ	■15KΩ	14Ω	15Ω	220KΩ	10KΩ	0Ω		
V 3	6CB6	1Meg	47Ω	14Ω	12Ω	■1.2KΩ	■1.2KΩ	0Ω		
V 4	6CB6	1Meg	68Ω	12Ω	10Ω	■1KΩ	■1KΩ	0Ω		
V 5	6AM8	100Ω	.2Ω	■2KΩ	10Ω	9Ω	■1KΩ	.3Ω	5.6KΩ	0Ω
V 6	6AN8	■1Meg	2.2Meg	0Ω	9Ω	7Ω	†5.6KΩ	†33KΩ	1Meg	120Ω
V 7	6U8	■11KΩ	.8Ω	■18KΩ	7Ω	5Ω	■18KΩ	150Ω	0Ω	47KΩ
V 8	6BN6	260Ω	3.2Ω	12Ω	10Ω	■5.6KΩ	5Ω	†330KΩ		
V 9	25L6GT	NC	20Ω	†300Ω	†50Ω	250KΩ	TP	15Ω	70KΩ	
V 10	12BH7	▲2Meg	550KΩ	0Ω	5Ω	5Ω	▲1KΩ	▲2Meg	8KΩ	3Ω
V 11	6SN7GT	850KΩ	†50KΩ	300KΩ	25KΩ	†28KΩ	0Ω	3Ω	2Ω	
V 12	25CU6	NC	20Ω	TP	†12KΩ	470KΩ	TP	15Ω	0Ω	TOP CAP ▲20Ω
V 13	12AX4GT	NC	NC	250KΩ	NC	†50Ω	TP	20Ω	22Ω	
V 14	1X2B		PINS	1 - 8	HAVE	INF	RESISTANCE			TOP CAP ▲355Ω
V 15	21ATP4	0Ω	0Ω	PIN 6 70KΩ	PIN 10 ▲350KΩ	PIN 11 ■370KΩ	PIN 12 12Ω			

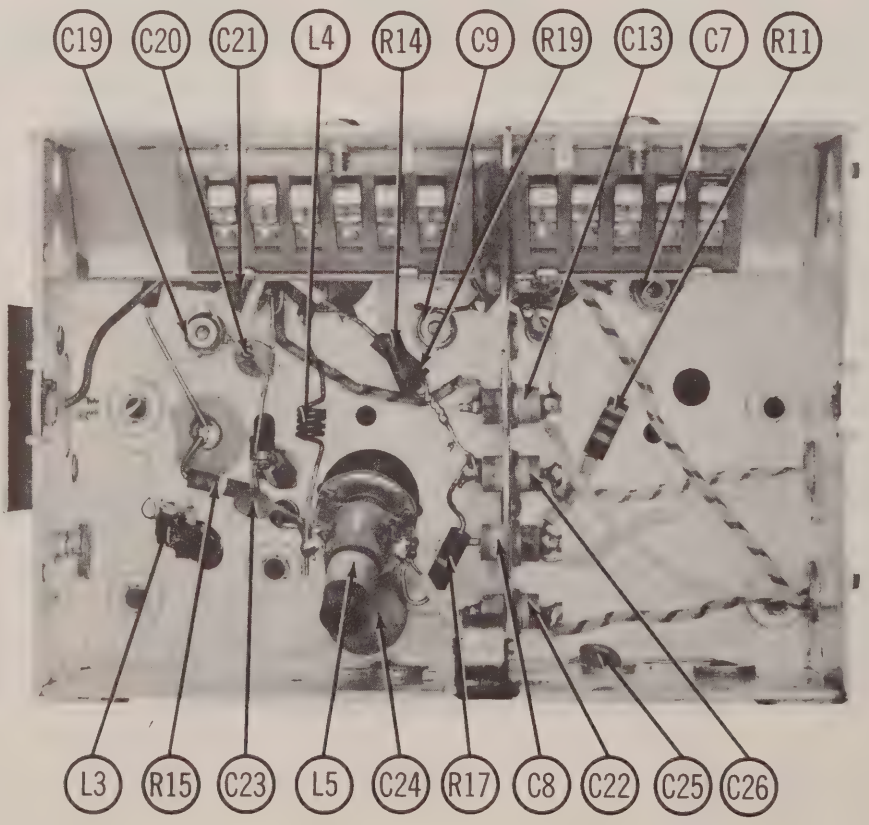
■ MEASURED FROM 155V LINE
† MEASURED FROM OUTPUT OF M1
▲ MEASURED FROM PIN 3 OF V13
NC-NO CONNECTION
TP-TIE POINT



TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

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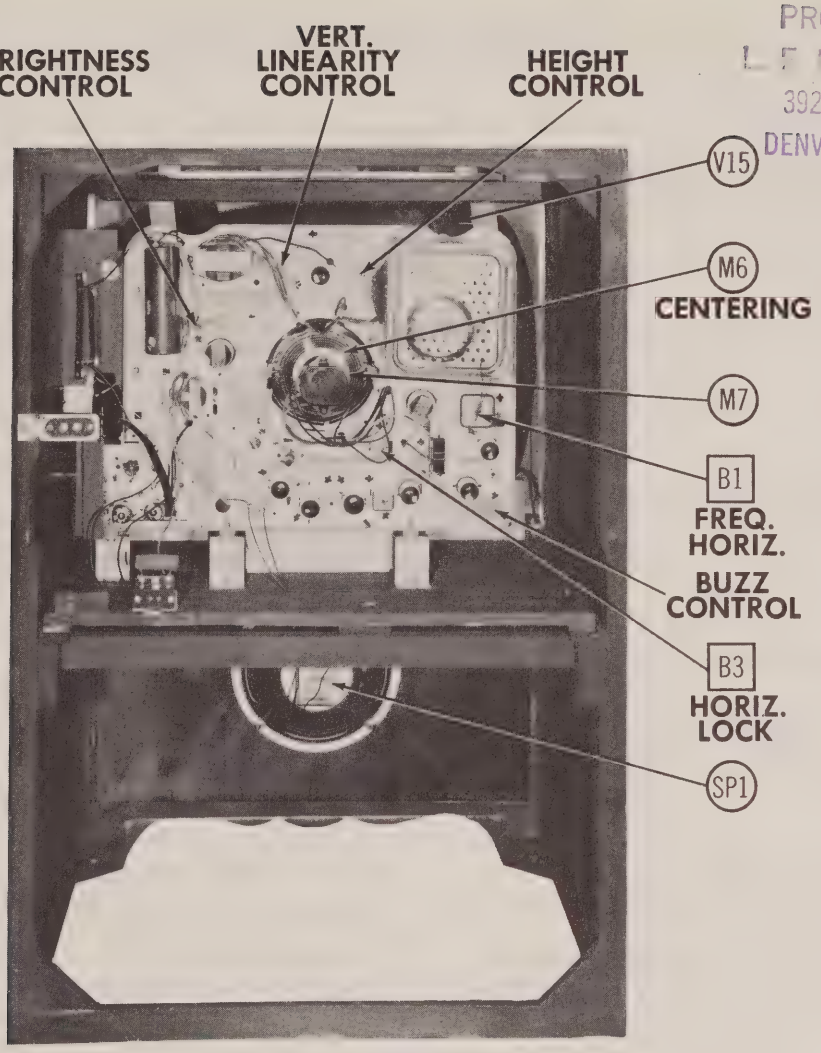


CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern. Set contrast control for normal contrast.

1. Set the horizontal hold control to its mid-range position and adjust the horizontal frequency slug (B1) until the picture sychronizes horizontally.

2. Connect the vertical amplifier of an oscilloscope thru 10MMF to lug 4 of L17. Connect the low side to chassis. Adjust the horizontal waveform slug (B2) until waveform similar to Fig.6 is obtained. While making this adjustment keep the picture in sync with the horizontal hold and if necessary, B1 and the horizontal lock trimmer (B3).

3. Turn the horizontal hold control fully clockwise. Turn B1 counter clockwise until the picture just loses sync, then turn B1 clockwise until picture is just ready to pull-in sync.

4. Turn the horizontal hold control fully counter clockwise. Picture should remain in sync. Momentarily remove the signal by switching off channel and back again. If more than seven bars are present adjust the horizontal lock trimmer (B3) slightly counter clockwise until 3 or 4 bars appear when switching off channel and back again. If less than three bars are present when switching off channel and back again , adjust B3 slightly clockwise and check by switching off channel and back again.

Repeat steps 3 and 4 until the effective pull-in range of the horizontal hold control is from 60 to 120 degrees.

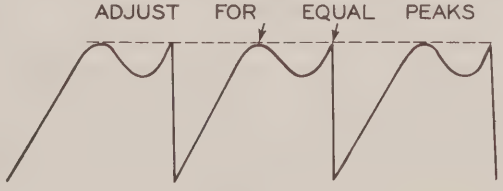


FIG. 6

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss of High Voltage".

INSUFFICIENT SWEEP

Check by substitution V12 and V13. Check M1 and M2. Check T2, T4A, R72, R77, R76, C68, C69, C1 and other associated components.

DRIVE LINES

Check by substitution V12 and V13. Check C68, C69, R72 and other associated components.

COMPRESSED LEFT SIDE

Check by substitution V12 and V13. Check horizontal output and damper stages for component failure or change of value.

FOLDS

Follow procedure outlined under "Drive Lines".

PIE CRUST EFFECT

Check by substitution V11, V12 and V13. Check C63 and C64 for open. Check L17, C65, R62 and other associated components.

XMAS TREE EFFECT

Check by substitution V11, V12 and V13. Check T2 and T4 for internal arcing. Check L17, C66, C67, R69, R62 and other associated components.

VERTICAL

LOSS OF SWEEP

Substitute V10. Check waveform W7.

If Satisfactory	If Unsatisfactory
Check T3, T4B, C59, C2D, R54 and other associated components.	Check T1, C57, R55, R7 and other associated components.

INSUFFICIENT SWEEP

Substitute V10. Check height and vertical linearity controls for proper operation. Check T3, R55 and other associated components.

COMPRESSED AT BOTTOM

Substitute V10. Check R55, R7, T1 and other associated components.

COMPRESSED AT TOP

Substitute V10. Check R54, R6, C2D, C59 and other associated components.

FOLDS

Substitute V10. Check C58, T3, R54 and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Check by substitution V6 and V7. Check C53A, C53B, C54, R51, R49 and other associated components.

LOSS OF VERTICAL SYNC-HORIZONTAL SYNC SATISFACTORY

Substitute V10. Check vertical integrator network. Check C56, T1, R1 and other associated components.

LOSS OF HORIZONTAL SYNC-VERTICAL SYNC SATISFACTORY

Substitute V11. Check C61, C67, C65, L17, R69, R63, R62, R2 and other associated components. Check adjustments B1, B2 and B3.

HORIZONTAL BENDING

Check by substitution V6, V7 and V11. Check components associated with V11.

VIDEO

LOSS OF VIDEO

Substitute V6. Check C40, C41, C43, C2C, R38, R39, L14 and other associated components.

SOUND BARS (4.5MC BEAT)

Adjust tuner fine tuning for best sound and picture. Check adjustment A7. Check video IF alignment.

POOR CONTRAST

Substitute V6. Check contrast control. Check R37, L13, L11, C40, C43 and other associated components.

NEGATIVE PICTURE

Substitute V6. Check picture tube. Check video detector network. Check C40, C43, L14 and other associated components.

SMEAR

Substitute V6. Check L11, L13, L14, C40, C43 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V1, V3, V4, V5 and V6 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V7, V8 and V9. Check stage V9 using audio signal generator. Apply audio signal across R3.

If Satisfactory	If Unsatisfactory
Check audio detector and audio IF stages for component failure or change of value.	Check C51, C52, R46, R47, R44, T5, speaker and other associated components.

BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustments A8 and R8 for minimum buzz. If still unsatisfactory, check audio IF alignment.

DISTORTED

Follow procedure outlined under "Weak or No Sound".

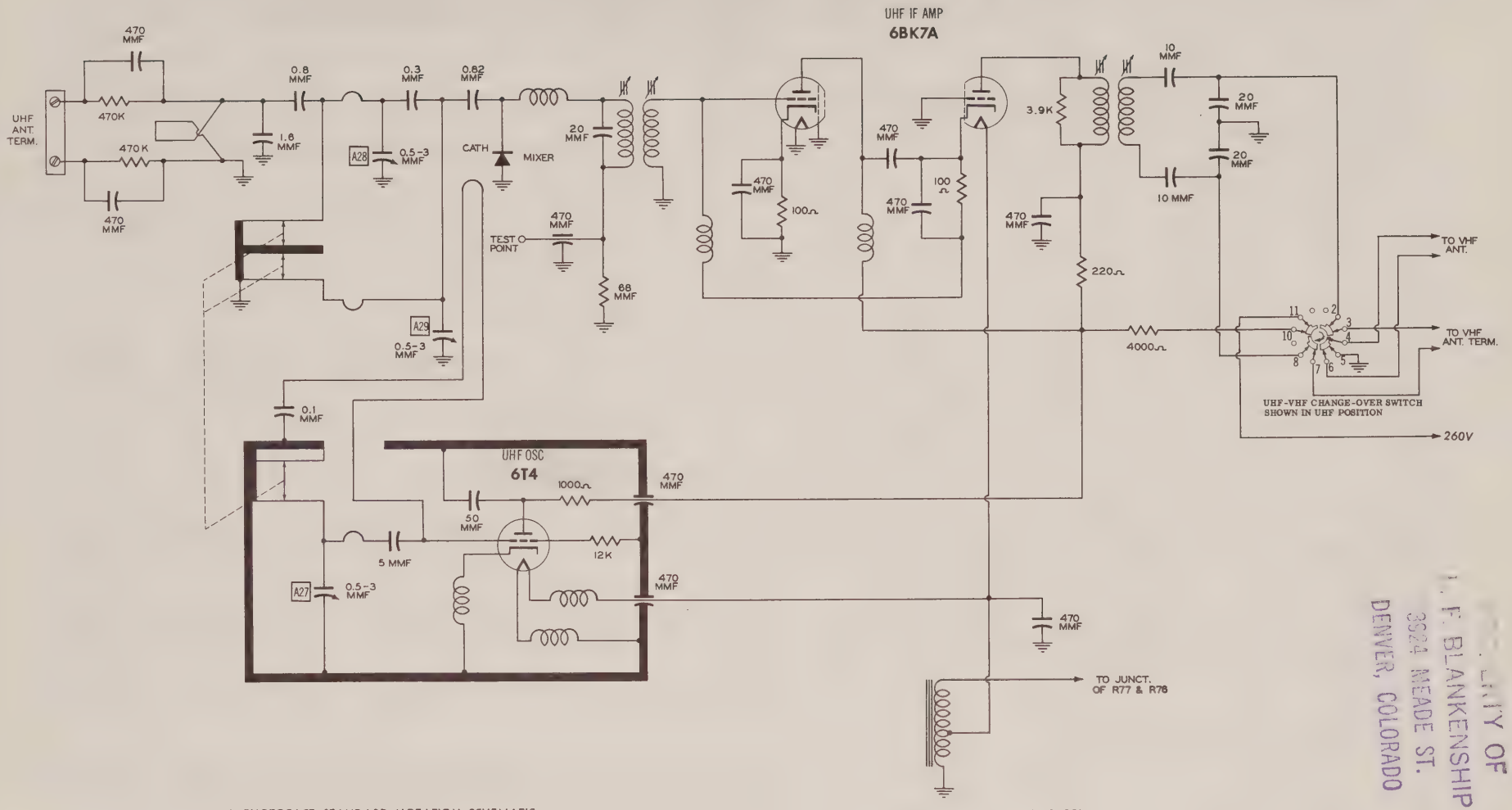
POWER

DEAD SET

If filaments fail to light, check all tubes. These tubes are in series. Check R76. Check AC interlock assembly. If filaments light, check R77, C1, M1 and M2. Check B+ filter and decoupling network.

SMALL AND/OR DIM PICTURE

Check R77, C1, M1 and M2. Check B+ filter and decoupling network.



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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UHF TUNER D157917-1-6 USED ON MODELS 1U-921, 924, & 991

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DENVER, COLORADO

ALTERNATE TUNER SCHEMATIC

SENTINEL MODELS 1U-901, 1U-911, 1U-914, 1U-921, 1U-924, 1U-991

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No	USE	REPLACEMENT DATA: SENTINEL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	RF Amplifier	6BC5	6BC5	TBD	
V2	Osc.-Mixer	6J6	6J6	TBF	
V3	1st. Video IF Amp.	6CB6	6CB6	TCM	
V4	2nd. Video IF Amp.	6CB6	6CB6	TCM	
V5	3rd. Video IF Amp.				
V6	Video Detector Video Output- Sync Separator	6AM8	6AM8	8CY	
V7	Sound IF Amp.- Sync Amplifier	6AN8	6AN8	8DA	
V8	Audio Detector	6U8	6U8	9AE	
V9	Audio Output	6BN6	6BN6	TDF	
V10	Vert. Osc.- Vert. Output	25L6GT	25L6GT	7S	
V11	Horiz. AFC- Horiz Osc. Horiz. Output Damper HV Rectifier	12BH7 6SN7GT 25CU6 12AX4GT 1X2B	12BH7 6SN7GT 25CU6 12AX4GT 1X2B	9A 8BD 6AM 4C6 8Y	

CATHODE-RAY TUBE

ITEM No	REPLACEMENT DATA: SENTINEL PART No	CBS HYTRON PART No	GENERAL ELECTRIC PART No	SYLVANIA PART No	WESTINGHOUSE PART No	RETMA BASE TYPE	NOTES
V15	21ATP4 21AVP4	21ATP4	21ATP4	21ATP4 21AVP4	21ATP4	12L 12L	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: SENTINEL Part No	REPLACEMENT DATA: CENTRALAB Part No.	REPLACEMENT DATA: ERIE Part No.	REPLACEMENT DATA: MALLORY Part No	REPLACEMENT DATA: PYRAMID Part No	REPLACEMENT DATA: SANGAMO Part No.	NOTES
C1	200	200	B158557-1-1					D-100	
C2A	140	300	B157838-3-1			FP419.4	TM-4007	Q-162	
B	200	150				TC78	TD-40-350		
C	5	300							
D	30	150							
C3A	200	150	B157836-1-3			FP318.1	TM-300-150	D-088	
B	5	150					TD-8-150		
C4	20	20	B157903-1-2			TC75	TD-20-450	FM-6530	
C5	470	2000	B158201-1-1	DD30-471	3EV-471	DC-30347			
C6	470	3000	B158201-1-1	DD30-471	3EV-471	DC-30347			
C7	3-8		159906-16	829-10					
C8	800		158106-5						
C9	5-3		158906-5	829-3	3U5-01-GR5	CT565A			
C10	120		158106-5	D6-121	8U-121	UC-5312			
C11	120		158106-5	D6-121	8U-121	UC-5312			
C12	1000		158106-1	DD-102	80I-001	DC-521			
C13	800		158106-5						
C14	800		158106-5						
C15	120		158106-5	D6-121	8U-121	UC-5312			
C16	5-3		158906-5	829-3	3U5-01-GR5	CT565A			
C17	10		158106-5	TCZ-10	NP9K-100	27-541			
C18	2.2		158106-5						
C19	5-3		158906-5	829-3	3U5-01-GR5	CT565A			
C20	1000		158106-1	DD-102	80I-001	DC-521			
C21	1000		158106-1	DD-102	80I-001	DC-521			
C22	800		158106-5						
C23	8.2		158106-16		NP0A- 8R2				
C24	43		158106-16	TCZ-43	NP0L-430				
C25	120		158106-5	D6-121	8U-121	UC-6312			
C26	800		158106-5						
C27	1000		23E4004-5	DD-102	80I-001	DC-521		K-1210	
C28	1000		23E4004-5	DD-102	80I-001	DC-521		K-1210	
C29	5000		23E4004-15	DD-502	8U-005	DC-525		C-1250	
C30	5000		23E4004-15	DD-502	8U-005	DC-525		C-1250	
C31	1000		23E4004-5	DD-103	80I-001	DC-521		K-1210	
C32	68	500	C3T7469-33	TCZ-68	NP0L-680	ZT-5468		KM-1468	
C33	1000		23E4004-5	DD-102	80I-001	DC-521		K-1210	
C34	5000		23E4004-15	DD-502	8U-003	DC-525		C-1250	
C35	5000		23E4004-15	DD-502	8U-005	DC-525		C-1250	
C36	1000		23E4004-5	DD-102	80I-001	DC-521		K-1210	
C37	10		D137727-135-1						
C38	5		D137727-103	D6-050	GPIK-050	ZT-555		K-1550	
C39	.25	25	A157810-1			PT4025	IMP2-P25	3303025	
C40	.1	150	A157906-1-1	DF-104		PT461	IMP2-P1	330261	
C41	33		D137727-128						
C42	68		D137727-133	TCZ-68	NP0L-680	ZT-5468		KM-1468	
C43	.1	400	23E3416	DF-104		PT401	IMP4-P1	330401	
C44	5000		23E4004-15	DD-502	8U-005	DC-525		K-1250	
C45	.01	400	23E3410	D6-103	GP2-333-103	PT41	IMP4-S1	330411	
C46	33		D137727-126						
C47	.01	400	23E3410	D6-103	GP2-333-103	PT41	IMP4-S1	330411	
C48	5000		23E4004-15	DD-502	8U-005	DC-525		K-1250	
C49	15		D137727-43						
C50	1000		23E4004-5	DD-102	80I-001	DC-521		K-1210	
C51	.022	200	23E3412	DF-203	81T-02	PT4122	IMP4-S22	3304122	
C52	.022	300	23E3413	DF-303	81T-02	PT4123	IMP4-S23	3304123	
C53A	270				81J-271	UC-3327			
B	10000		†A157813-1-3	†PC-282	81J-01	DC-511			
C	25				831-A 250	UC-5423			
C54	.047	200	23E3414	DF-503		PT4147	IMP2-S47	3302147	
C55A	5000		♦A157812-1-2	♦PC-106	81J-005	DC-535		C-1250	
B	5000				81J-005	DC-525		C-1250	
C56	.01	400	23E3424	D6-103	GP2-333-103	PT41	IMP4-S1	330411	
C57	5000		23E4004-15	DD-502	8U-005	DC-525		C-1250	
C58	.033	400	23E4004-35	DD-503	81J-005	DC-525	IMP2-S3	3306123	Note 1
C59	5000					PT4133		C-1250	

CAPACITORS (cont)

ITEM No.	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: SENTINEL Part No.	REPLACEMENT DATA: CENTRALAB Part No.	REPLACEMENT DATA: ERIE Part No.	REPLACEMENT DATA: MALLORY Part No	REPLACEMENT DATA: PYRAMID Part No	REPLACEMENT DATA: SANGAMO Part No	NOTES
C60	5000		23E4004-15	DD-502	8U-005	DC-525		C-1250	
C61	30		B137727-61						
C62	.047	400	23E3414	DF-503		PT4147	IMP4-S47	3304147	
C63	.35	35	A157810-1-1			PT4035	IMP2-P25	3302025	
C64	.022	200	23E3413	DF-303	81T-02	PT4122	IMP4-S22	3304122	
C65	820	500	C137408-33-1	TCZ-330	NP0-335-331			KM-1333	
C66	.01	400	23E3424						
C67	33		D137727-126						
C68	1200		C144675-33-1						
C69	560		C144675-33-1	D6-561	8U-561	UC-5356		K-1256	
C70	.047	400	23E3414	DF-503		PT4147	IMP4-S47	3304147	
C71	82	3000	C158215-33-1	DD30-820				K-3482	
C72	.068	300	23E3415			PT4168	IMP4-S68	3304168	
C73	68	3000	C158215-3	DD30-680	3EV-680			K-3468	
C74	5000			DD-502	8U-005	DC-525		C-1250	

Note 1. Some versions may use .047MFD in this application (part #23E3414). Use original value for replacement.
† Items C52A, C53B, C53C, R48A, R48B and R48C are combined in one unit.
♦ Items C55A, C55B, R53A, R53B are combined in one unit.

CONTROLS

ITEM No	RATING: RESIST ANCE	RATING: WATTS	REPLACEMENT DATA: SENTINEL PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No	REPLACEMENT DATA: MALLORY PART No	INSTALLATION NOTES
R1A	1Meg with 350KΩ stop	½	B157805-1-3	Q11-136	A47-750-8	B-59	U-54	Vert. Hold - Note 1
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
R2A	245KΩ with 70KΩ stop	½	B157803-1-3	Q11-135	A47-75K-8	B-35	U-61	Horiz. Hold - Note 2
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R2A
R3A	3.5MΩ	½	B157803-1-2	Q13-133	A47-500K-Z	B-60-8	U-48	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A
C	Switch		B157804-1-2	Q17-109	SWS-12	Not Req.	U5-26	Attach to R3A
R4A	1500Ω	½	B157804-1-2	Q17-109	A47-1500-8	AB-515	U-5	Contrast
B	Shaft		Not Req.	Not Req.	FS-3	AK-3	Not Req.	Attach to R4A
R5A	5Meg	½	B157804-1-3	Q17-141				Brightness
B	Shaft		Not Req.	RQ				Attach to R5A
R6A	175KΩ	½	B157800-1-1	Q11-105	A47-750-8	AB-5	U-4	Vert. Linearity
B	Shaft		Not Req.	RQ	KS8-3	AK-1	Not Req.	Attach to R6A
R7A	3Meg with 1Meg stop		B-157808-1-1	Q11-161	A47-4Meg-8	AB-88	SU-67	Height - Note 3
B	Shaft		Not Req.	RQ	FKS-1/4	AK-1	Not Req.	Attach to R7A
R8	500Ω	1			39-500			Buzz (Wire wound)

Note 1: Connect a 330KΩ resistor in series with the left hand terminal of the control and the lead connecting to the same terminal of the original control. (Control viewed from shaft end, terminals down.)
Note 2: Connect a 68KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control. (Control viewed from shaft end, terminals down.)
Note 3: Connect a 1Meg resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control. (Control viewed from shaft end, terminals down.)

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SENTINEL Part No	REPLACEMENT DATA: IRC PART No.	NOTES
R9	470KΩ	½	27E474M-½	BTS-470K	
R10	470KΩ	½	27E474M-½	BTS-470K	
R11	47K	3		BTS-47K	
R12	15KΩ	½		BTS-15K	
R13	2200Ω	½		BTS-2200	
R14	1000Ω	½		BTS-1000	
R15	220KΩ	½		BTS-220K	
R16	4700Ω	½		BTS-4700	
R17	15KΩ	½		BTS-15K	
R18	10KΩ	½		BTS-10K	
R19	15KΩ	½		BTS-15K	
R20	1000Ω	½	27E102K-½	BTS-1000	
R21	47000Ω	½	27E473K-½	BTS-47000	
R22	2700Ω	½	27E272K-½	BTS-2700	
R23	47Ω	½	27E470K-½	BTS-47	
R24	10KΩ	½	27E103K-½	BTS-10K	
R25	1000Ω	½	27E102K-½	BTS-1000	
R26	220Ω	½	27E221K-½	BTS-220	
R27	1000Ω	½	27E102K-½	BTS-1000	
R28	68Ω	½	27E680K-½	BTS-68	
R29	1000Ω	½	27E102K-½	BTS-1000	
R30	12KΩ	½	27E123K-½	BTS-12K	
R31	100Ω	½	27E101K-½	BTS-100	
R32	1000Ω	½	27E102K-½	BTS-1000	
R33	1000Ω	½	27E102K-½	BTS-1000	
R34	1Meg	½	27E105M-½	BTS-1Meg	
R35	5600Ω	½	27E562K-½	BTS-5600	
R36	1Meg	½	27E105M-½	BTS-1Meg	
R37	47Ω	½	27E470K-½	BTS-47	
R38	33KΩ	½	27E333K-½	BTA-33K	
R39	5600Ω	2	A156913-2	BTA-5600	
R40	100KΩ	½	27E104K-½	BTS-100K	
R41	150Ω	½	27E151K-½	BTS-150	
R42	18KΩ	½	27E183K-½	BTS-18K	
R43	5600Ω	1	27E562K-1	BTA-5600	
R44	470Ω	1	27E471K-1	BTS-470	
R45	560KΩ	½	27E564K-½	BTS-560K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SENTINEL Part No.	REPLACEMENT DATA: IRC Part No	NOTES
R46	470KΩ	½	27E474K-½	BTS-470K	
R47	8200Ω	½	27E822K-½	BTS-8200	
R48A	10KΩ	3		BTS-10K	
B	220KΩ	3	†A157813-1-3	BTS-220K	
C	2.2Meg	½		BTS-2.2Meg	
R49	1Meg	½	27E105K-½	BTS-1Meg	
R50	47KΩ	½	27E473K-½	BTS-47K	
R51	6800Ω	½	27E682K-½	BTS-6800	
R52	4700Ω	½	27E472K-½	BTS-4700	
R53A	10KΩ	3	♦A157812-1-2	BTS-10K	
B	10KΩ	2		BTS-10K	
R54	7500Ω	½	A156911-4-1		
R55	390KΩ	½	27E394K-½	BTS-390K	
R56	820KΩ	½	27E824K-½	BTS-820K	
R57	82Ω	½	27E68LK-½	BTS-680	
R58	680Ω	½	27E68LK-½	BTS-680	
R59	560KΩ	½	27E564K-½	BTS-560K	
R60	150KΩ	½	27E154K-½	BTS-150K	
R61	150KΩ	½	27E154K-½	BTS-150K	
R62	100KΩ	½	27E104K-½	BTS-100K	
R63	27KΩ	½	27E273K-½	BTS-27K	
R64	1000Ω	½	27E102K-½	BTS-1000	
R65	150KΩ	½	27E154K-½	BTS-150K	
R66	8200Ω	½	27E823K-½	BTS-8200	
R67	2.7Meg	½	27E275K-½	BTS-2.7Meg	
R68	100KΩ	½	27E104K-½	BTS-100K	
R69	18KΩ	½	27E183K-½	BTS-18K	
R70	470KΩ	½	27E474K-½	BTS-470K	
R71	100Ω	½	27E101K-½	BTS-100	
R72	12KΩ	2	A156911-5-1	BTS-12K	
R73	4700Ω	½	27E472K-½	BTS-4700	
R74	126Ω	10	A156230-1-1		
R75	43Ω	5	A156230-2-1		
R76			A157949-1-1		Note 1
R77	7.5Ω	5	B154089-1-5		
R78	33KΩ	1		BTA-33K	
R79	22KΩ	1		BTA-22K	Note 2

Note 1: Tube saver resistor, at normal room temperature resistance is 125Ω, when hot resistance will be 43Ω.
Note 2: Not used in some versions.
† Items R48A, R48B, R48C, C55A, C55B and C53C are combined in one unit.
♦ Items R55A, R53B, C56A and C55B are combined in one unit.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: SENTINEL PART No	Halldorson PART No	Merit PART No	RCA TYPE No	Rem PART No	Stancor PART No	Thordarson PART No	Triad PART No
T1	Vert.Osc. Trans.	B8353-3-1	B8703	A-3008		V406	A-8131	34A87 ①	A-97X
T2	Horiz.Output Trans.	30E996	F3418 *				A-8341 *	FLY-25 *	
T3	Vert.Output Trans.	22E97 C-158726-1-1 ②							Y-41
		C-158477-1-2 ③							
T4A	Yoke (90°) Horiz.(30KHz)	156365-1	DF90T ①				DY-M4	Y-15 ② ③	
B	Vert.(60cps)	158426-1-3 ①							

① Drill new mounting hole(s).
② Use original yoke cover and centering device.
③ Connect as in original circuit.
④ Alternate deflection yoke.
⑤ Alternate vertical output transformers, when alternate transformer is used resistor R79 is omitted.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTION	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Rem Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
7	HV Rect. Plate Lead				HV Rect Plate Lead	HV Rect. Plate Lead	
6	6				3	6	
3	3				1	3	
5	5				See Note ④	5	
2	2				2	2	

② Remove green lead from yoke. Connect R73 in series with C72 across terminals #1 and #2 of yoke.

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE: PRI	IMPEDANCE: SEC	REPLACEMENT DATA: SENTINEL PART No	Stancor PART No	Merit PART No	Triad PART No	Halldorson PART No	Thordarson PART No	NOTES
T5	2.2KΩ	3.5Ω	B157U9-1-1	A-3332	A-3025	S-12X	ZU101	26H58	

SPEAKER

ITEM No	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V C. IMP	REPLACEMENT DATA: SENTINEL PART No	JENSEN PART No	QUAM PART No	NOTES
SP1	5"	PM	3.5Ω	1E34-3	ST-U5 Mod. P4-X	8A21	1. Used in models 1U-901, 1U-911, 1U-921 and 1U-991.
	4"	PM	3.5Ω	AD158327-1-1	ST-U3 Mod. P4-X	4A1	

COILS (RF-IF)

ITEM No.	USE	DC RES.: PRI	DC RES.: SEC	REPLACEMENT DATA: SENTINEL PART No	MEISSNER PART No	MERIT PART No	MILLER PART No	NOTES
L1A	VHF Ant. Coils	0OCT	0Ω	158021-2				Channel 2
B	VHF Ant. Coils	0OCT	0Ω	158021-3				Channel 3
C	VHF Ant. Coils	0OCT	0Ω	158021-4				Channel 4
D	VHF Ant. Coils	0OCT	0Ω	158021-5				Channel 5
E	VHF Ant. Coils	0OCT	0Ω	158021-6				Channel 6
F	VHF Ant. Coils	0OCT	0Ω	158021-7				Channel 7
G	VHF Ant. Coils	0OCT	0Ω	158021-8				Channel 8
H	VHF Ant. Coils	0OCT	0Ω	158021-9				Channel 9
I	VHF Ant. Coils	0OCT	0Ω	158021-10				Channel 10
J	VHF Ant. Coils	0OCT	0Ω	158021-11				Channel 11
K	VHF Ant. Coils	0OCT	0Ω	158021-12				Channel 12
L2A	VHF RF, Mixer Grid & Osc. Coils	0Ω		158022-2				Channel 2
B	VHF RF, Mixer Grid & Osc. Coils	0Ω		158022-3				Channel 3
C	VHF RF, Mixer Grid & Osc. Coils	0Ω		158022-4				Channel 4
D	VHF RF, Mixer Grid & Osc. Coils	0Ω		158022-5				Channel 5
E	VHF RF, Mixer Grid & Osc. Coils	0Ω		158022-6				Channel 6
F	VHF RF, Mixer Grid & Osc. Coils	0Ω		158022-7				Channel 7
G	VHF RF, Mixer Grid & Osc. Coils	0Ω		158022-8				Channel 8
H	VHF RF, Mixer Grid & Osc. Coils	0Ω		158022-9				Channel 9
I	VHF RF, Mixer Grid & Osc. Coils	0Ω		158022-10				Channel 10
J	VHF RF, Mixer Grid & Osc. Coils	0Ω		158022-11				Channel 11
K	VHF RF, Mixer Grid & Osc. Coils	0Ω		158022-12				Channel 12

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SENTINEL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L	VHF RF, Mixer Grid & Osc. Coils	0Ω		158022-13				Channel 13
L3	Fil. Choke	0Ω		156906-51				
L4	RF Choke	0Ω		156906-52				
L5	Conv. Plate	.7Ω		158106-11				
L6	1st Video IF	.3Ω		AA157787-1-5	17-1003	TV-102	6171A	
L7	2nd Video IF	.2Ω	.2Ω	20E994	17-1004	TV-102	6250	
L8	Fil. Choke	0Ω		AB155256-1-1	19-1000		4602	
L9	3rd Video IF	.2Ω	.2Ω	B158224-1-3	17-1006		6253	Includes 21.9MC Trap
L10	4th Video IF	.3Ω	.3Ω	B158355-1-4	17-1001*	TV-100*	6251	
L11	Series Peaking Coil	3.2Ω		B158352-1-1	19-1006		4624	16 Microhenries
L12A	4.5MC Trap	2.7Ω						
B	1st Sound IF	.8Ω		B158353-1-2				
L13	Shunt Peaking Coil	19Ω		B158222-1-1	19-3660■		4651■	685 Microhenries; Wound on 4.7KΩ resistor
L14	Series Peaking Coil	9Ω		B158223-1-1	19-4201▲	TV-184▲	6154▲	210 Microhenries; Wound on 27KΩ resistor
L15	2nd Sound IF	1.8Ω	3.2Ω	B158354-1-2				
L16	Quadrature Coil	5Ω		B158351-1-2	20-1005	TV-151 TV-162	1480 6183	
L17	Horiz. Osc.	58Ω	26Ω	C158225-1-2	20-1402			Wavefore winding = 44Ω

* Detune trap winding.
■ Parallel with 4.7KΩ resistor.
▲ Parallel with 27KΩ resistor.

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D.C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA SENTINEL PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L18	.200ADC	51.5Ω	1HY	B155529-2	C-2326①	C-2996①	C-23X ①	C5040	26C44①

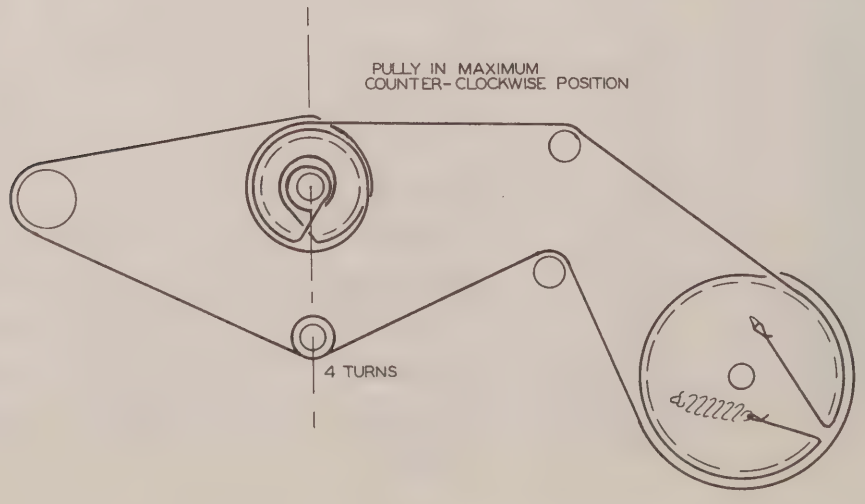
① Drill one new mounting hole.

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA SENTINEL PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.200A	C155575-2-1	1090A	MR300	6S300	6Q4	300	
M2	.200	C155575-2-1	1090A	MR300	6S300	6Q4	300	

MISCELLANEOUS

ITEM No.	PART NAME	SENTINEL PART No.	NOTES
M3	Tuner	D157282-1-2	VHF - All models
M4	Tuner	D157917-1-6	UHF - Models 1U-921, 1U-924, 1U-991
M5	Switch	B157867-1-2	VHF-UHF - Models 1U-921, 1U-924, 1U-991
M6	Centering Device		Part of yoke cover (T4)
M7	Ion Trap	B153109-2-3	
B3	Trimmer Cap.	A157870-1-1	Horiz. Lock (10-160MMF)
	Knob	37E95-2	VHF Channel Selector - Models 1U-911, 1U-914, 1U-921, 1U-924
	Knob	37E95	VHF Channel Selector - Models 1U-901, 1U-991
	Knob	37E94	VHF Fine Tuning
	Knob	37E93	Horiz. Hold, Vertical hold, Contrast and On-off-volume
	Knob	37E95-3	UHF Channel Indicator - Models 1U-921, 1U-924, 1U-991
	Knob	D158359-1-1	UHF Tuning - Models 1U-921, 1U-924, 1U-991
	Knob	37E93-2	Switch (VHF-UHF)
	Mask	36E102	Models 1U-911, 1U-914, 1U-921, 1U-924,
	Mask	36E101	Models 1U-901, 1U-991
	Safety Glass	9E50-4	Models 1U-911, 1U-914, 1U-921, 1U-924
	Safety Glass	9E50-5	Models 1U-901, 1U-991



UHF DRIVE CORD STRINGING

PROPERTY OF
L. F. MANKENSHIP
[illegible] MEADE ST.
DENVER, COLORADO

TROUBLE SHOOTING AIDS (cont)

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V11, V12, V13 and V14. Check waveform W13.

If Satisfactory	If Unsatisfactory
Check C71, C72, C70, R72, T2, T4A and other associated components.	Check L17, C67, C66, C69, C62, R62, R63, R2 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V12 and V13. Check R77, C1, M1 and M2. Check R72, C69 and other associated components.

BLOOMING

Check by substitution V12, V13 and V14. Check R77, C1, M1 and M2. Check C69, R72 and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss of Video".

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak or No Sound".

RASTER, NO SOUND, NO PICTURE

Check by substitution V1, V2, V3, V4, V5, V6 and V9. Check video IF components for failure ot change of value.

NO RASTER, NO SOUND

Follow procedure outlined under "Dead Set".

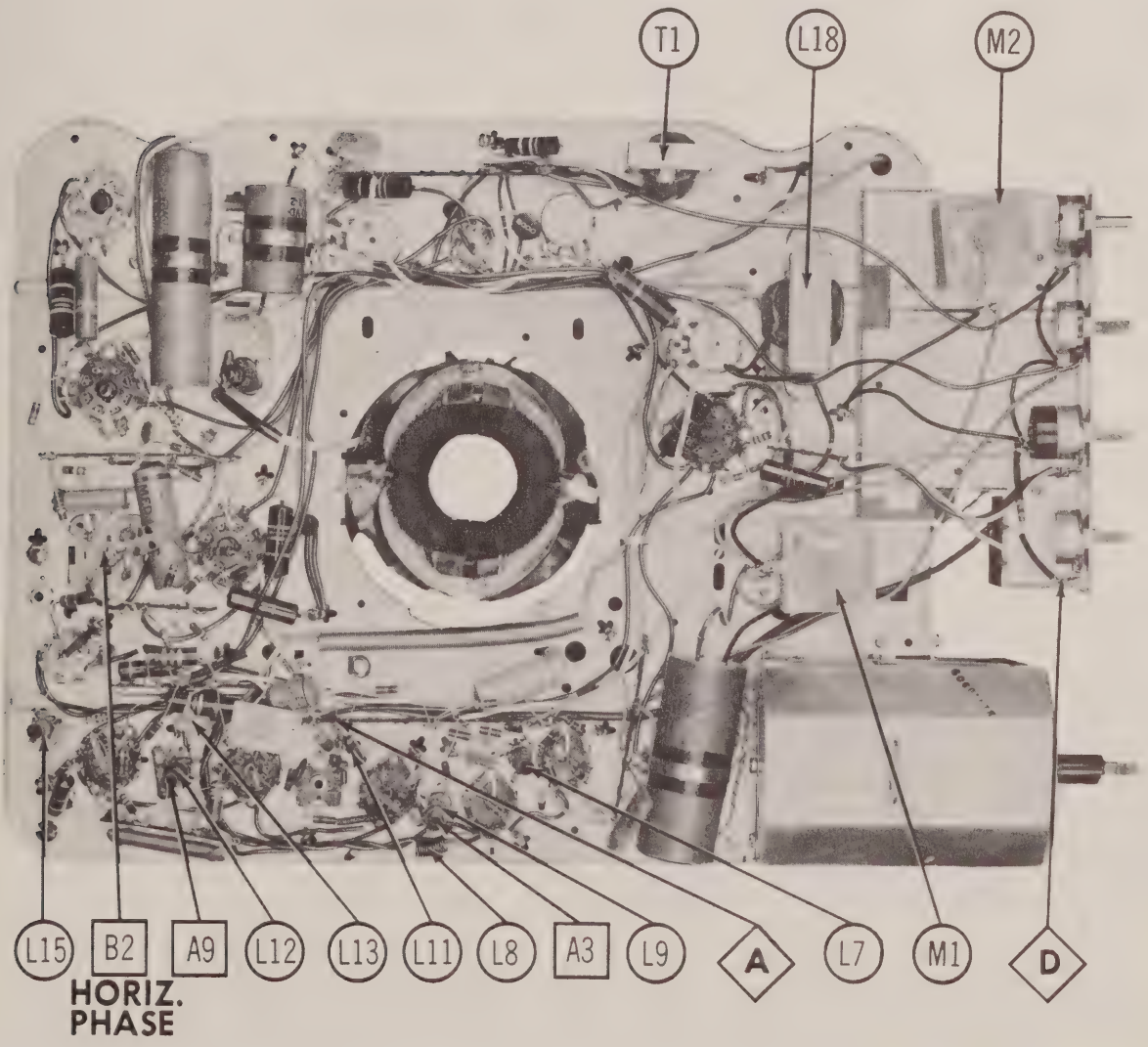
KEYSTONE EFFECT

Check T4 and its associated components.

INTERMITTENT STREAKS

Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR & ALIGN. IDENTIFICATION

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removal of the channel selector and fine tuning knobs. The adjustments are accessible, one at a time, thru the small hole in the cabinet below and to the left of the channel switch shaft.

PICTURE TUBE SAFETY GLASS CLEANING

For picture tube safety glass cleaning, it is necessary to remove chassis. (See disassembly instructions).

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION - See tube placement chart on page 5.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to the set. Adjustment is located on top of the chassis. Set the horizontal hold control at the center of its range and adjust the horizontal frequency slug of L17 until picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, it is necessary to remove rear cover and supply power to set. Adjust the buzz control (R8) for maximum volume and minimum buzz.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

DISASSEMBLY INSTRUCTIONS

REMOVAL OF CHASSIS FROM CONSOLE CABINETS

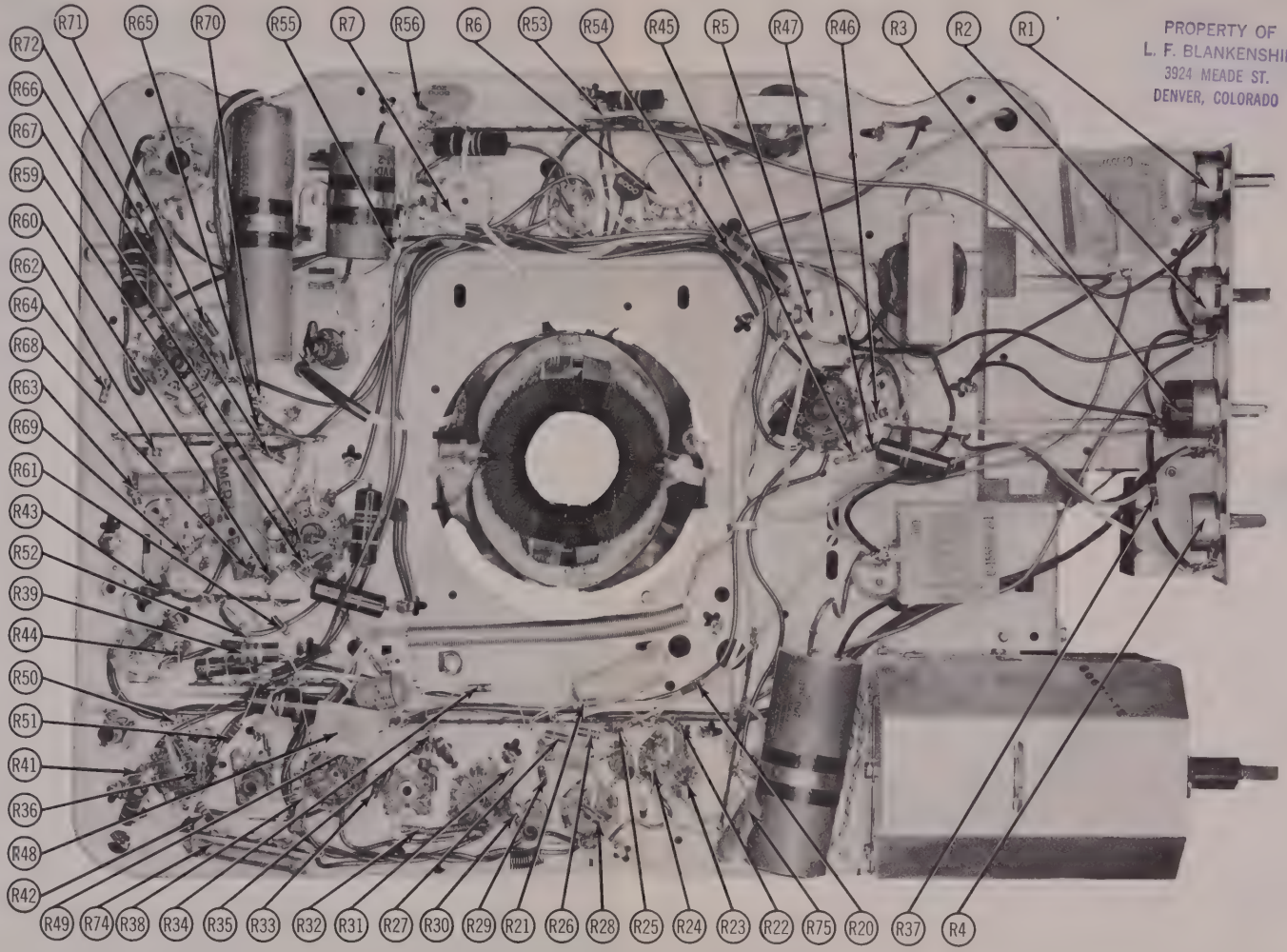
1. Remove 6 push-on type control knobs from side of cabinet.
2. Remove 4 wood screws. Remove rear cover.
3. Remove 1 wood screw holding antenna bracket. Remove bracket.
4. Disconnect 2 speaker leads.
5. Remove 7 chassis mounting board screws.
6. Slide mounting board out of cabinet.
7. Remove 4 speaker nuts. Remove speaker.

REMOVAL OF CABINET FROM MOUNTING BOARD (TABLE MODELS ONLY)

1. Remove 6 push-on type control knobs from side of cabinet.
2. Remove 4 wood screws. Remove rear cover.
3. Remove 1 wood screw holding antenna bracket. Remove bracket.
4. Disconnect 2 speaker leads.
5. Place cabinet face down on a soft cloth.
6. Remove cabinet mounting screws located under and on the outer edges of the cabinet. (Do not remove chassis mounting screws).
7. Remove 2 wood screws from lower rear corner of cabinet.
8. Return cabinet to its normal upright position and lift cabinet from mounting board.
9. Remove 4 speaker nuts. Remove speaker.

PICTURE TUBE REMOVAL

1. Remove mounting board from cabinet.
2. Disconnect picture tube socket and HV lead.
3. Remove Ion trap.
4. Loosen bolt on strap around picture tube.
5. Remove picture tube.



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SILVERTONE
MODEL 4212 (Ch. 757.421)

SILVERTONE
MODEL 4212 (Ch. 757.421)

TRADE NAME	Silvertone Model 4212 (Ch. 757.421)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan, Chicago, Ill.
TYPE SET	Battery Operated Portable AM Superheterodyne Receiver
TUBES (Four)	Types 1V6 Conv., 1T4 IF Amp., 1U5 Det.-AVC-AF Amp., 1AG4 Output
POWER SUPPLY	1.5 Volts "A" Supply & 45 Volts "B" Supply
RATING	175MA @ 1.5 Volts DC & 4MA @ 45 Volts DC
TUNING RANGE—BROADCAST	535KC-1640KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to pin 3 (grid) of 1V6 (V1). Low side to chassis.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	Direct	Loop	1640KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	"	1400KC	1400KC	"	A6	"
4.	"	"	1000KC	1000KC	"		Fan rotor plates for maximum output.
5.	"	"	600KC	600KC	"		"

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		Silvertone PART No.	STANDARD REPLACEMENT		
V1	Converter	1V6	1V6		
V2	IF Amplifier	1T4	1T4	6AR	
V3	Det.-AVC-AF Amp	1U5	1U5	6BW	
V4	Audio Output	1AG4	1AG4		

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT	Silvertone PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1	10	50				TC32	TD-10-50	MMT-0510	Note 1
C2	.02	100	E3018	DF-203	817-02				
C3	3.3		E3315	TCZ-3.3	NP0A-3R3	ZT-5533			
C4	20000		E3317	DF-203	817-02				
C5A	150		†E3020	†PC-51	†1403-02				
B	150								
C6	100		E331	D6-101	GP1K-101	UC-531			
C7	2000		E3313	DD-202	801-002	DC-522			
C8A	100								
B	5000		♦E3019	♦PC-91	♦1407-03				
C	5000								
C9	2000		E3313	DD-202	801-002	DC-522			
C10	.02	100	E3018	DF-203	817-02				Note 2

Note 1. Some versions use 8MFD in this application (part #E3211).
Note 2. Not used in some versions.
† Items C5A, C5B and R4 are combined in one unit.
♦ Items C8A, C8B, C8C, R7A, R7B, and R7C are combined in one unit.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Silvertone PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	1Meg	½	E2510	Q13-137	A47-1Meg-Z	B-70-S	U-53	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-2	SWE-20	Not Req.	US-27	Attach to R1A

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Silvertone PART No.	IRC PART No.	
R2	1Meg	½		BTS-1Meg	
R3	1000Ω	½		BTS-1000	
R4	47KΩ	½	♦E3020	BTS-47K	
R5	1Meg	½		BTS-1Meg	
R6	10Meg	½		BTS-10Meg	

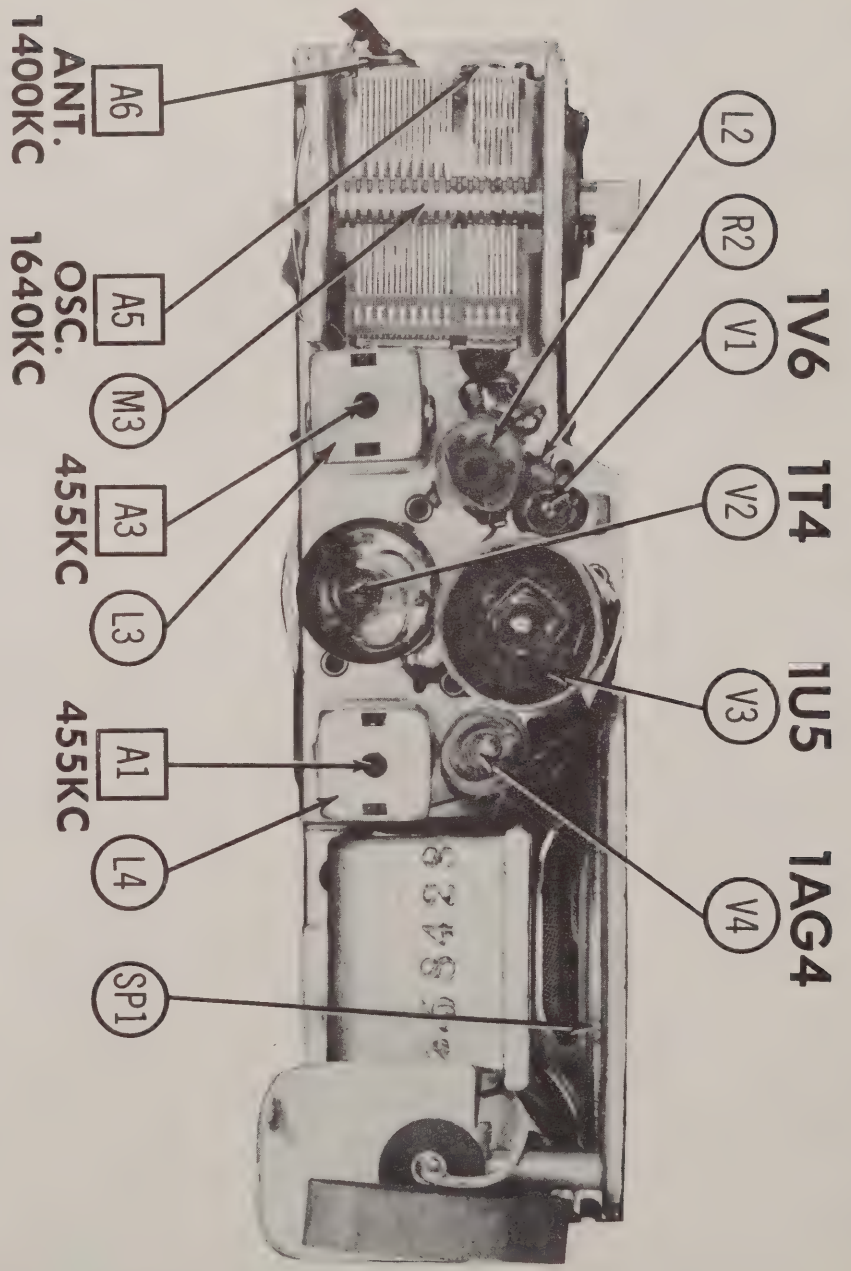
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Silvertone PART No.	IRC PART No.	
R7 A	4.7Meg	½	†E3019	BTS-4.7Meg	
B	1Meg	½		BTS-1Meg	
C	2.2Meg	½		BTS-2.2Meg	
R8	820Ω	½		BTS-820	

♦ Items R4, C5A, C5B are combined in one unit,
† Items R7A, R7B, R7C, C8A, C8B, C8C are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Silvertone PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	
T1	10KΩ	3.5Ω	E117						

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Silvertone PART No.	JENSEN PART No.	QUAM PART No.	
SP1	2½"	PM	3.5Ω	E109			

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	Silvertone PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	2.0Ω		E608				
L2	Osc. Coil	1.8Ω	7.5Ω	E6120	14-1073 *		69-OSC	
L3	Input IF	17Ω	17Ω	E6210	16-6800		10-C1	
L4	Output IF	19Ω	19Ω	E6210	16-6801		10-C2	

* Leads sufficient mounting support.

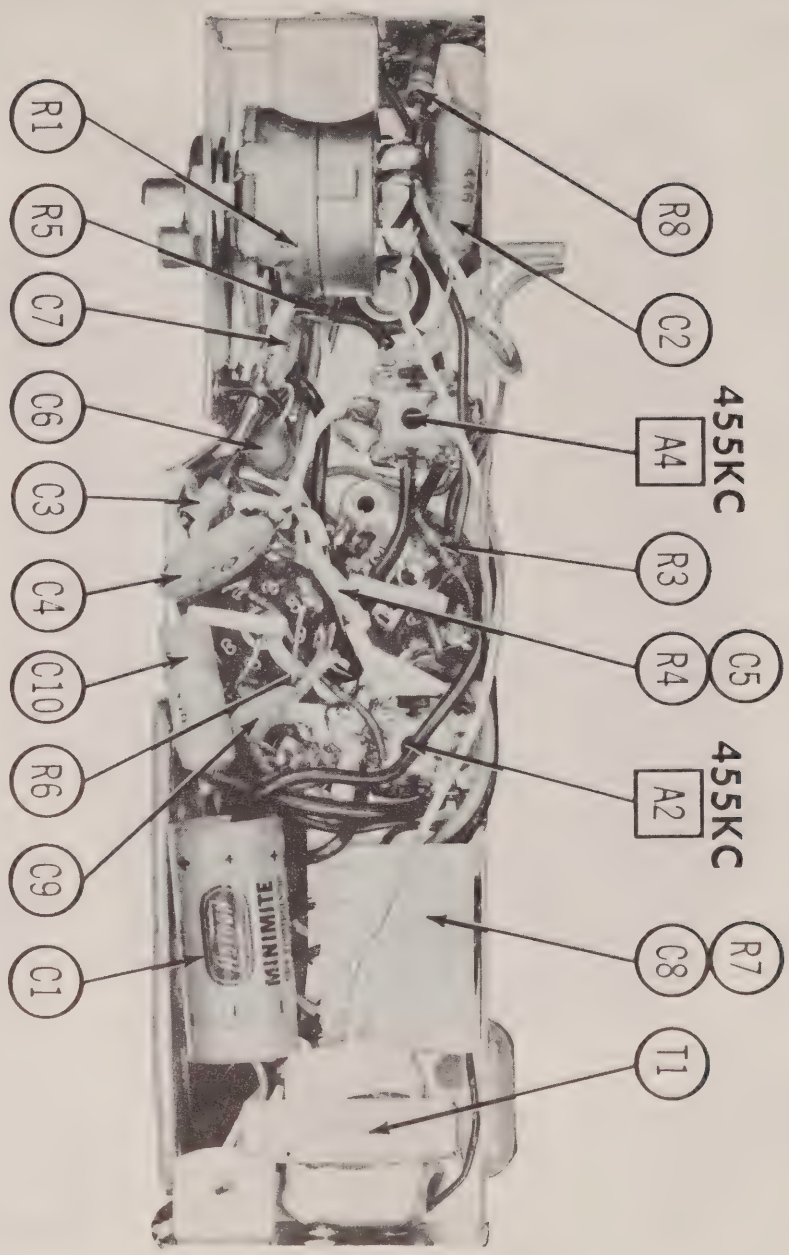
BATTERIES

ITEM No.	VOLTAGE	Silvertone PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M1	1.5V "A"		635			#1			
M2	45V "B"	6485		415			U30		

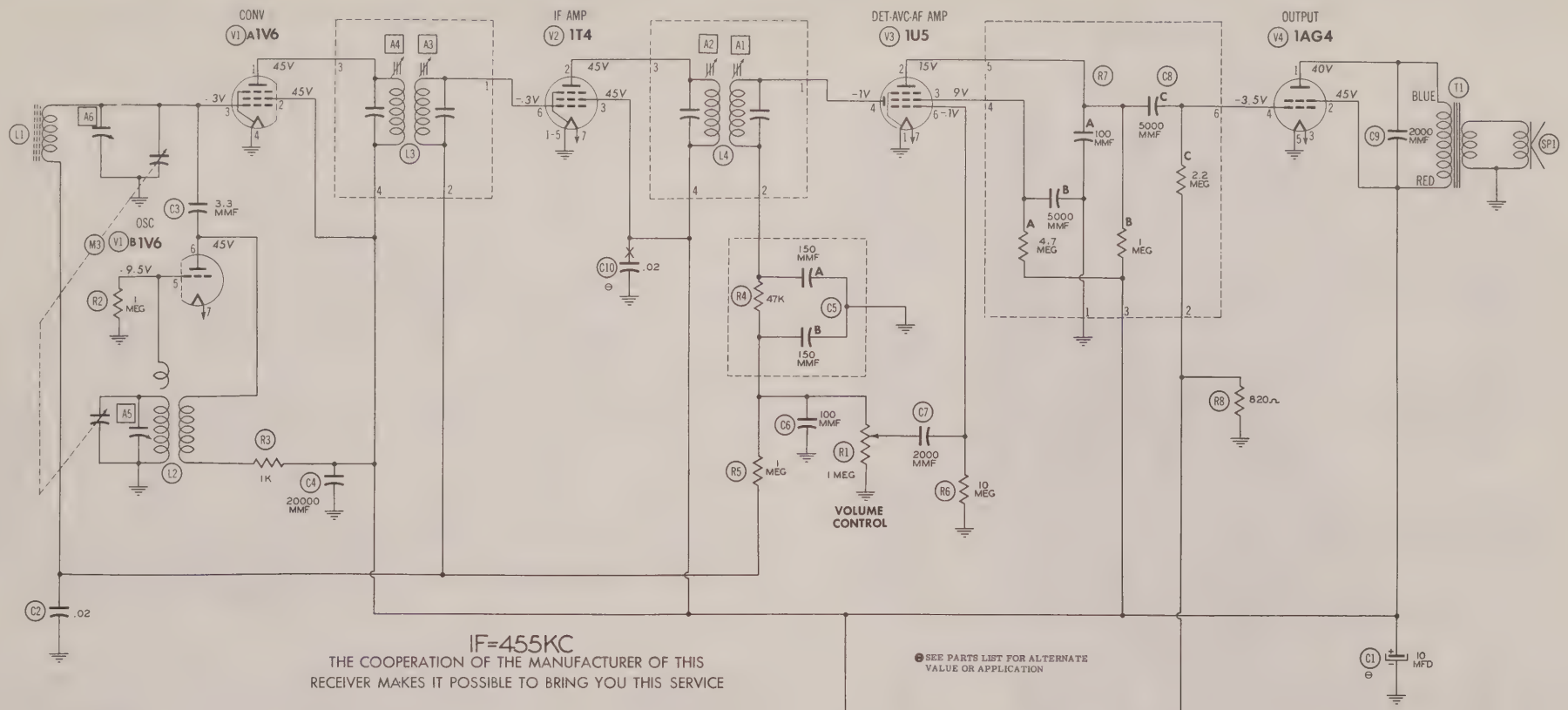
MISCELLANEOUS

ITEM No.	PART NAME	Silvertone PART No.	NOTES
M3	Tuning Cap.	E3510	2 Gang (9-210MMF, 9-90MMF)
	Cabinet	E7019	
	Knob	E5020	On-off-volume
	Knob	E5021	Tuning
	Name Plate	E7117	
	Dial Plate	E7118	
	Grille Cloth & Baffle	E7120	

CHASSIS—BOTTOM VIEW



SILVERTONE
MODEL 4212 (Ch. 757.421)



IF=455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1V6	†1KΩ	†1KΩ	2Meg	*	1Meg	†1.8Ω	*
V 2	1T4	*	†10Ω	†19Ω	TP	*	2Meg	*
V 3	1U5	*	†1Meg	†4.7Meg	1Meg	TP	10Meg	*
V 4	1AG4	†600Ω	50KΩ	*	2.2Meg	*		

* DO NOT USE OHMMETER TO MEASURED FILAMENT RESISTANCE
† MEASURED FROM PIN 2 OF V4
TP - TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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TRUETONE MODEL D2582A

PROPERTY OF
L. F. BLANKEN
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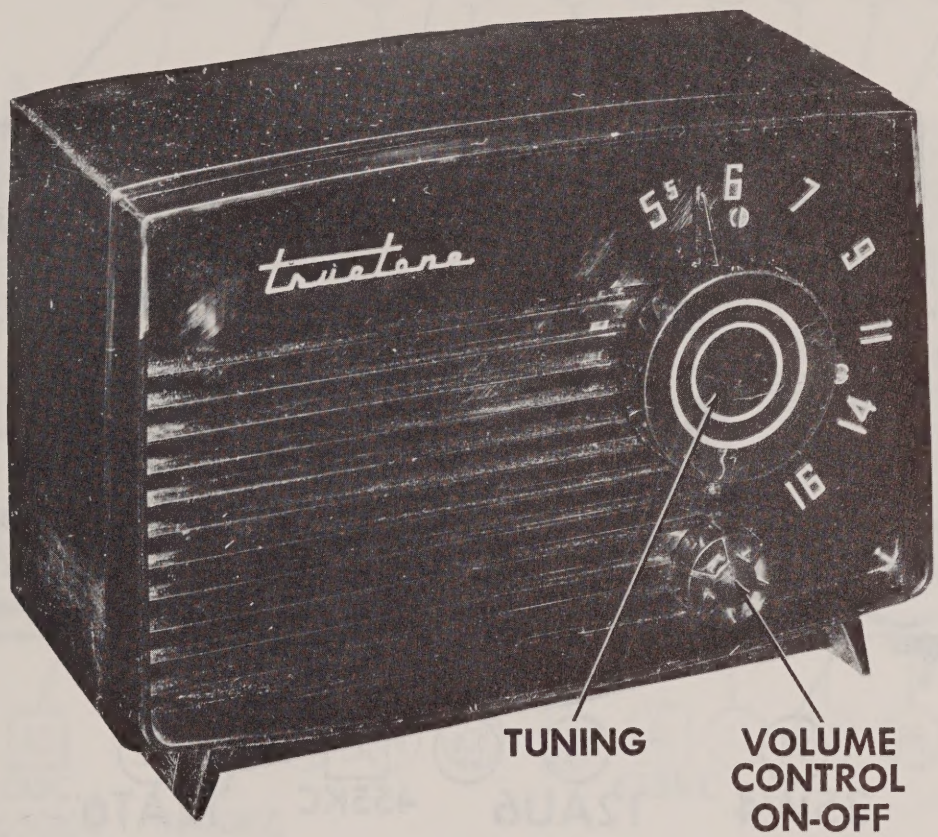
DENVER, COLORA

TRUETONE
MODEL D2582A



TRUETONE
MODEL D2582A

TRADE NAME	Truetone Model D2582A
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES (Four)	Types 12AU6 Conv., 12AT6 Det.-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC — RATING .23 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535KC-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to antenna stator lug. Low side to B-.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1650KC	"	"	A3	"
3.	Direct	Loop	1500KC	1500KC	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.	"	"	600KC	600KC	"		Check point.

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PARTS LIST AND DESCRIPTIONS

TRUETONE MODEL D2582A

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		TRUETONE PART No.	STANDARD REPLACEMENT		
V1	Converter	12AU6	12AU6	7BK	
V2	Det.-AF Amp.	12AT6	12AT6	7BT	
V3	Audio Output	50C5	50C5	7CV	
V4	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT	TRUETONE PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	40	150	150-113			TCT-3116	TDL-404020-150	CST-524	
B	40	150							
C	20	150							
C2	15			D6-150	GP1K-150	UC-5415		K-1415	Note 1
C3	50		156-107	D6-500	GP1K-500	UC-545		K-1450	
C4	100		156-102	D6-101	GP1K-101	UC-531		K-1310	
C5	.0022	600	152-101	D6-222	GP2-333-222	PT6222	IMP6-D22	3306222	
C6	10000		158-102	DD-103	811-01	DC-511			
C7	300			D6-301	GP2K-301	UC-533		K-1330	Note 1
C8	10000		158-102	DD-103	811-01	DC-511			
C9	.05	400	152-105	DF-503		PT415	IMP4-S5	330415	
C10	.1	400	152-108	DF-104		PT401	IMP4-P1	330401	

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	2Meg with 100K stop	½	120-104	Q13-139	A47-2Meg-Z	AB-76	U-55	Volume - Note
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWE-12	KB-1	US-26	Attach to R1A

Note. Connect a 100KΩ resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).

RESISTORS

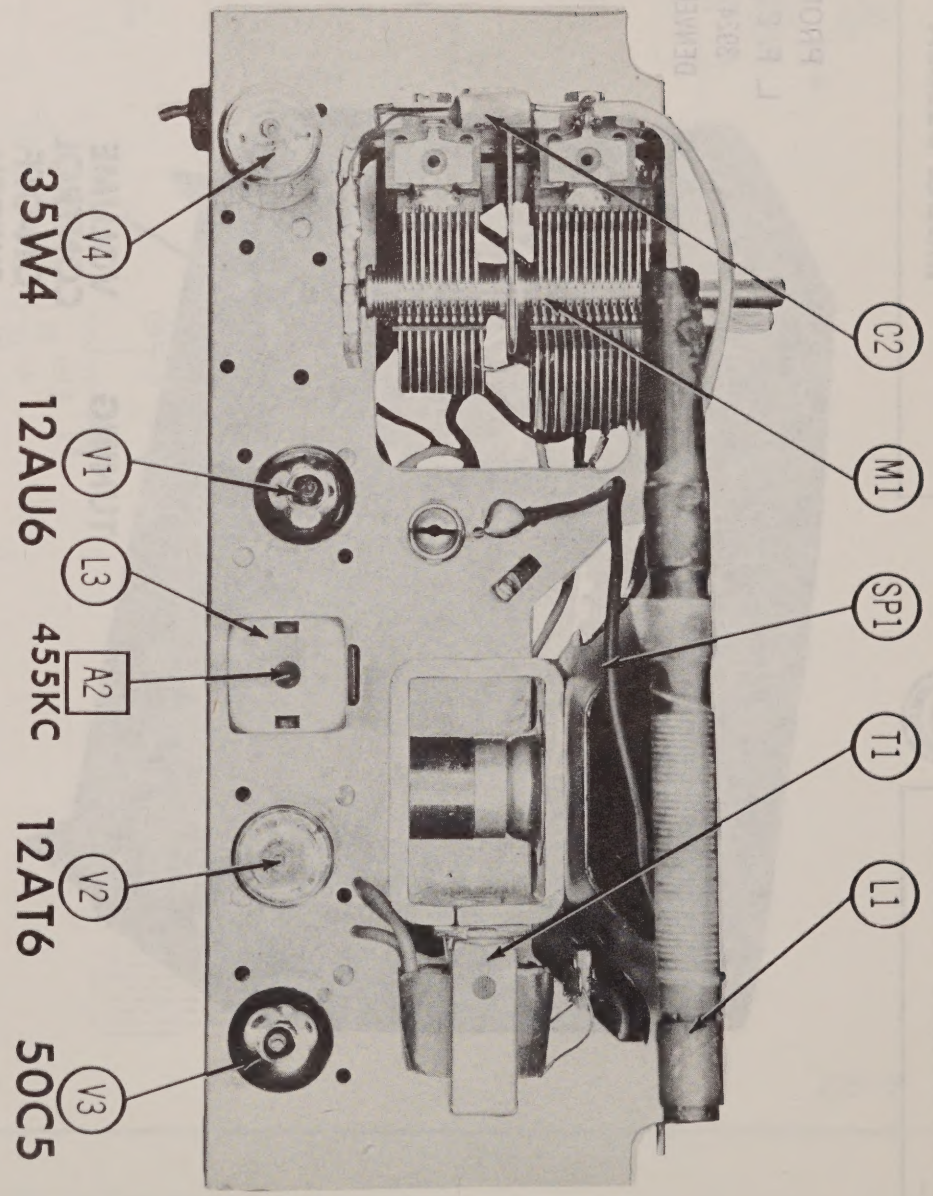
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	TRUETONE PART No.	IRC PART No.	
R2	2.2Meg	½	180-107	BTS-2.2Meg	
R3	10Meg	½	180-123	BTS-10Meg	
R4	330KΩ	½	180-109	BTS-330K	
R5	470KΩ	½	180-110	BTS-470K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	TRUETONE PART No.	IRC PART No.	
R6	150Ω	½	180-111	BTS-150	
R7	2200Ω	1	180-124	BTA-2200	
R8	68Ω	2	180-125		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TRUETONE PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	
T1	2.4KΩ	3.1Ω	Part of Spkr.	A-3332	A-3025	S-12X	Z1101	26S58	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	TRUETONE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.1Ω	175-105	ST-113 Mod. P4-X	4A1	

COILS (RF-IF)

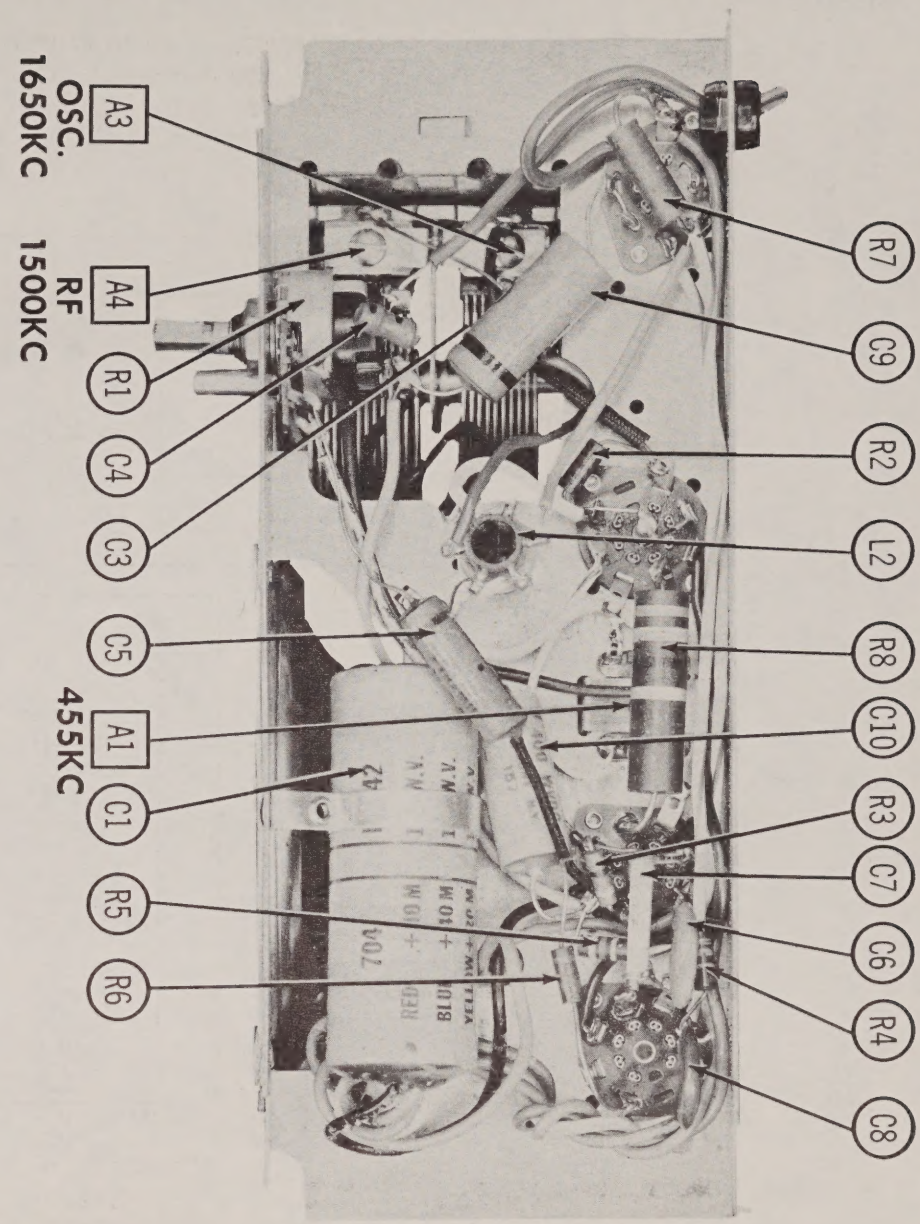
ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	.6Ω		134-107				
L2	Osc. Coil	1.5Ω	5.5Ω	136-111				Tertiary winding =2.9Ω
L3	IF Trans.	26Ω *	26Ω	130-106				

* Tapped @ .9Ω

MISCELLANEOUS

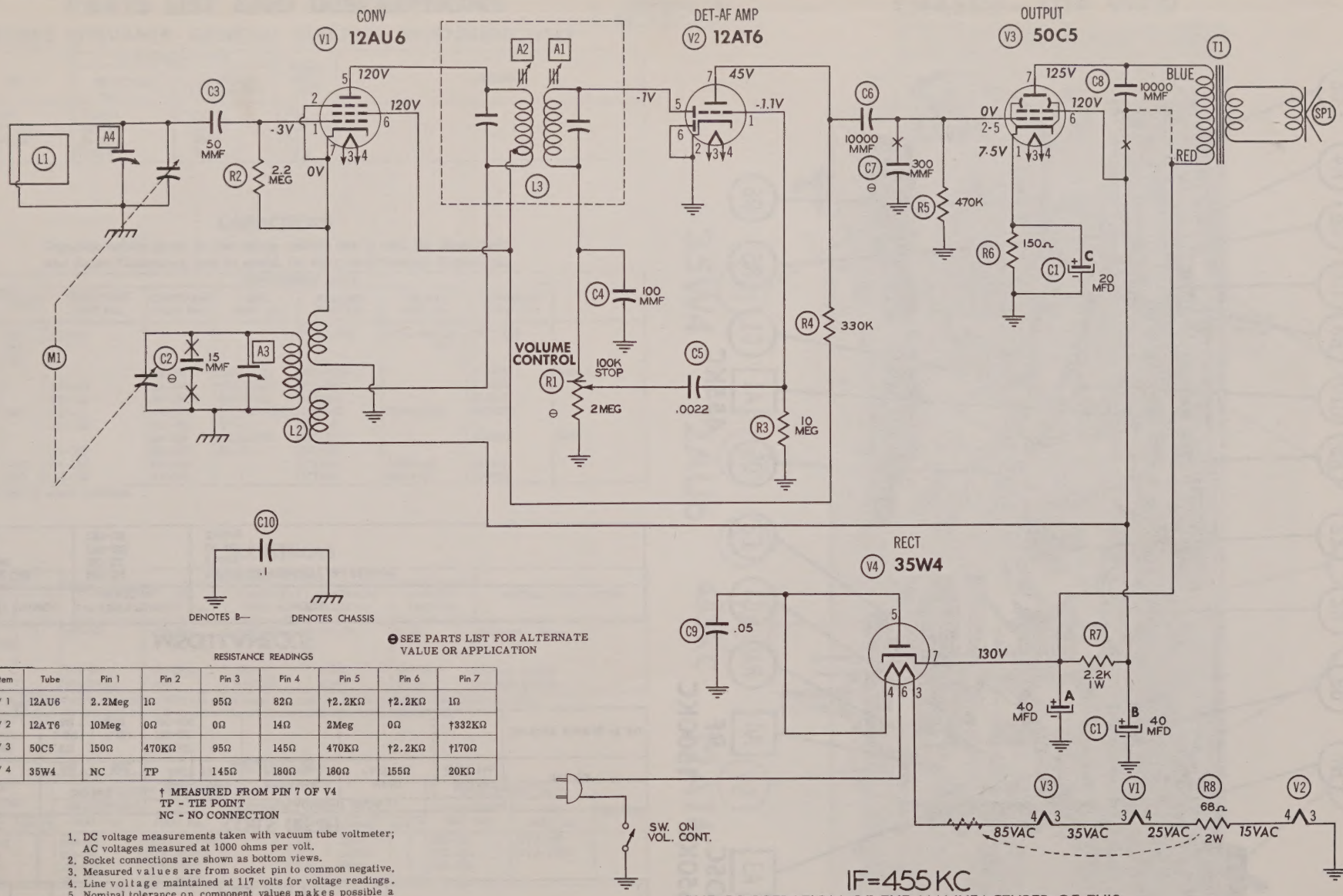
ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M1	Tuning Cap.	160-104	2 Gang (19-470MMF, 19-185MMF)
	Cabinet	210-112	Ebony
	Knob	220-122	On-off-volume
	Knob	220-121	Tuning

CHASSIS—BOTTOM VIEW



TRUETONE MODEL D2582A

TRUETONE MODEL D2582A



⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12AU6	2.2Meg	1Ω	95Ω	82Ω	†2.2KΩ	†2.2KΩ	1Ω
V 2	12AT6	10Meg	0Ω	0Ω	14Ω	2Meg	0Ω	†332KΩ
V 3	50C5	150Ω	470KΩ	95Ω	145Ω	470KΩ	†2.2KΩ	†170Ω
V 4	35W4	NC	TP	145Ω	180Ω	180Ω	155Ω	20KΩ

† MEASURED FROM PIN 7 OF V4
TP - TIE POINT
NC - NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

IF=455 KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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